

Viva

'The Living Terrarium'

For this project, I was challenged with the brief of designing a FabLab (multi- purpose space) for Keele University. The Site was located in Newcastle Upon Lyne and was a heritage building. I had to explore who I was as a designer in order to create a design that encompasses both the heritage of the SITE, and the values of Keele. I designed a sustainable science based building, committed to the nurturing and development of young STEAM students through the integration of collaborative research and study. The entire building is self generating from its solar energy source through to its horticulture production. My main design drivers paid attention to:

- Salutogenic design
- Preserving Heritage
- Self- Preservation & Low maintenance design

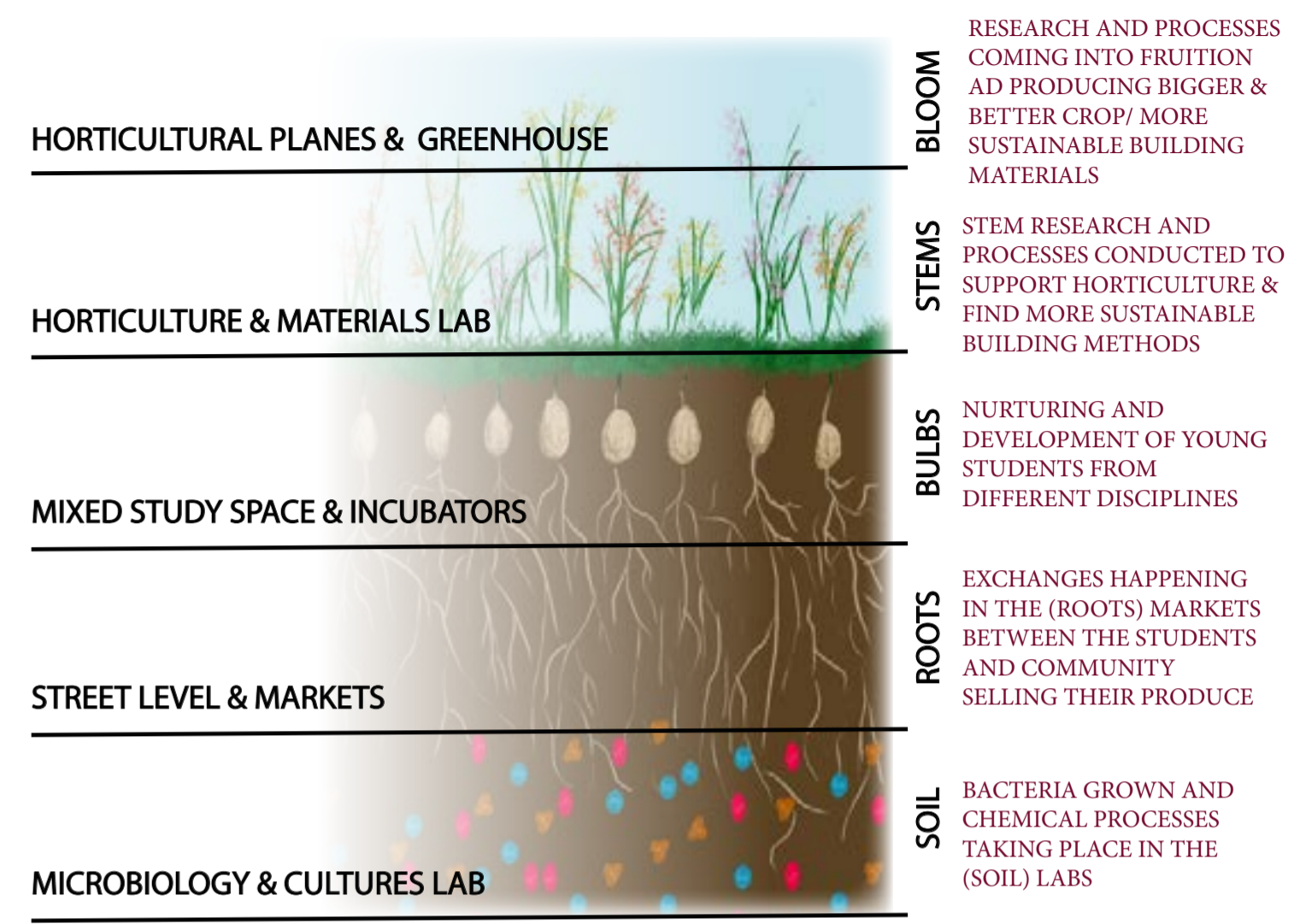
Jasmine Alexis



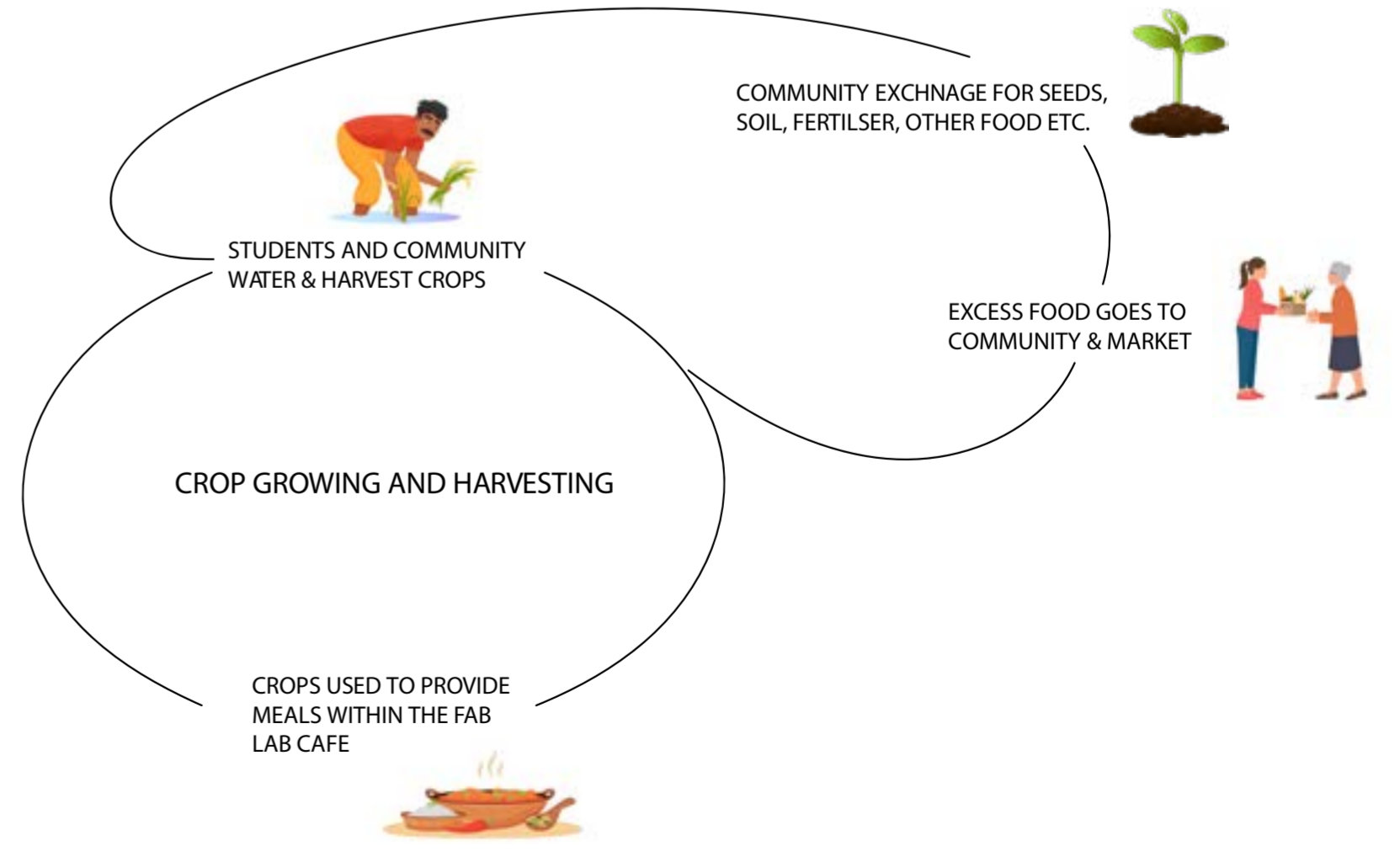
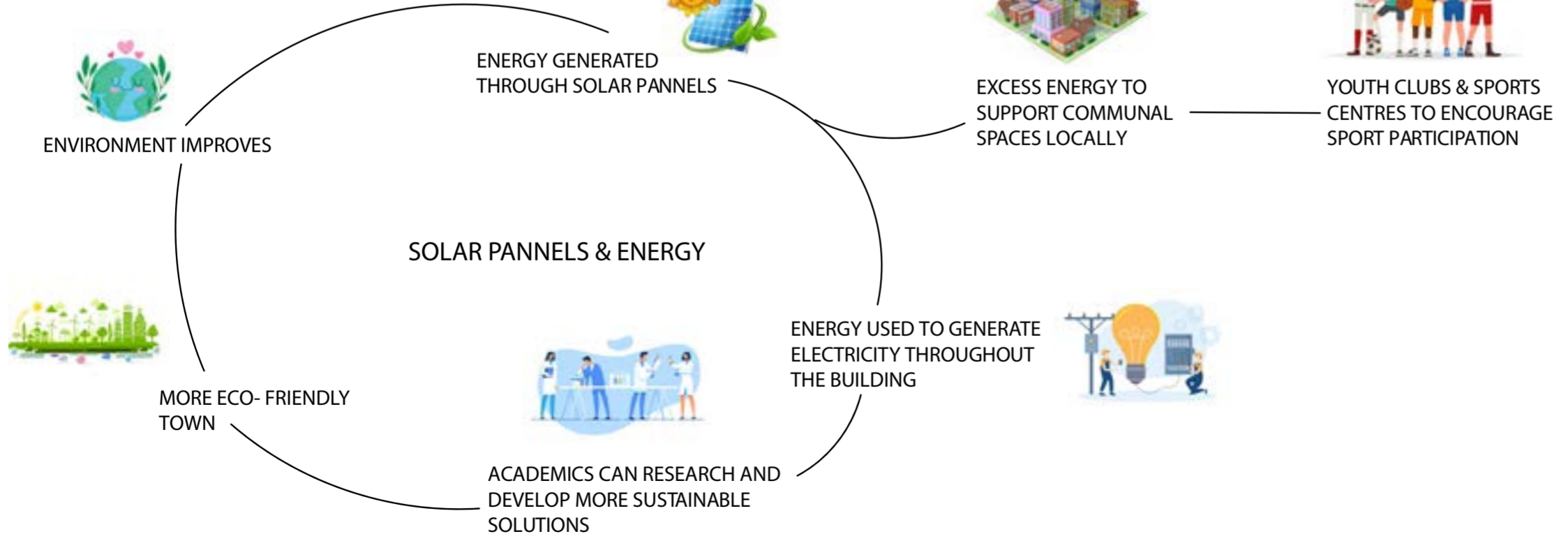
Sustainable Cycles & Processes



PLANT ANALOGY- THE LIVING BUILDING



SELF SUSTAINING FAB LAB





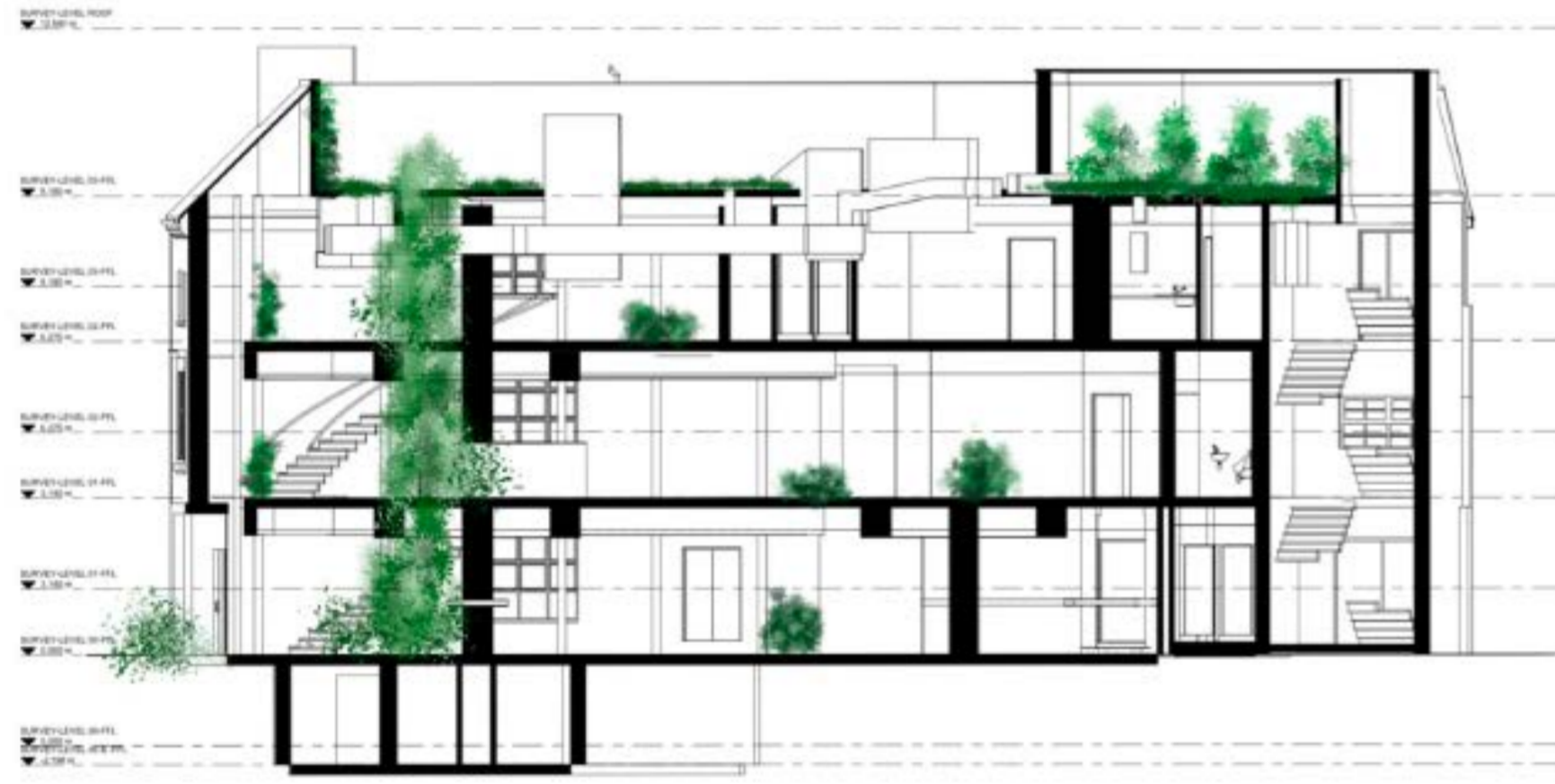
Original Brick

Glass Brick

SRUBAR'S Brick

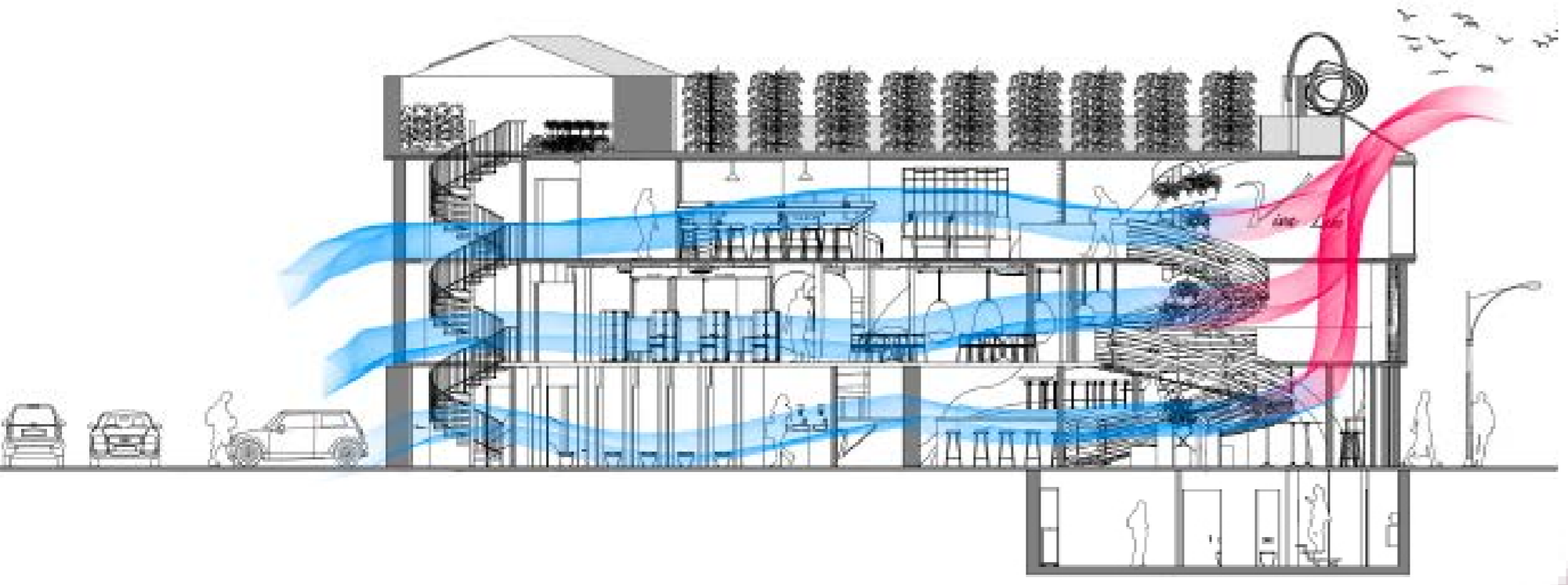


Biological materials are already in use such as wood, but they are corpses. Srubars bricks are created by combining colonies of cyanobacteria with sand and gelatin. The microbes produce calcium carbonate which mineralises the gelatin to bind to the sand. It is similar in strength to mortar and other current building materials, and has the ability to heal their own cracks, absorb harmful toxins in the environment, and remove carbon dioxide from the air. This introduces a more sustainable building design with regenerative and reproductive qualities, meaning, minimal maintenance and intervention. Bacteria grows at an exponential rate, making this material easier and faster to Manufacture. Initially i looked into hemp concrete, but there are too many uk Restrictions on how it is grown and harvested



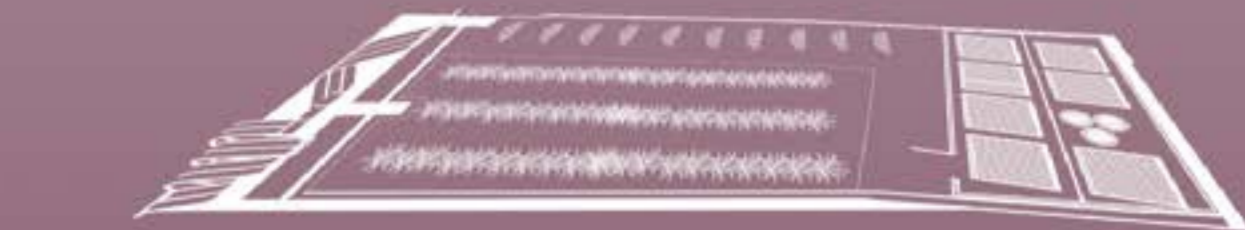
Biophilic Design

Plants remove toxins from the environment and filter to produce clean, oxygenated air. This aids the work of the srubars bricks. My choice in plant species were predominantly due to their low maintenance, ability to survive in mixed internal environments and their lack of need for soil. These air plants can survive with watering once in a while but won't be messy like other plants that live in soil.



Natural Ventilation

The internal temperature of this space is balanced using the atrium space at the front of the building to enhance ventilation. Air travels through small vents in the back of the building where wind is prominent, and travels up towards the opening in the glass skylight. This causes a vacuum of fresh cool air, carrying waste warmer air out of the building. These skylight on the ceiling can be closed in the cooler seasons. There are also vents located more prominently on busier floors such as the mixed study space, which are controlled by the ventilation system on the roof. In the cooler months, the choice of english brick from the existing structure benefits the internal environments. It absorbs heat from sunlight creating a warmer space. The glass faces create a greenhouse effect, transmitting the visible spectrum of radiation but not the long wave lengths. This also creates a warmer space.



ROOF FURNITURE PLAN



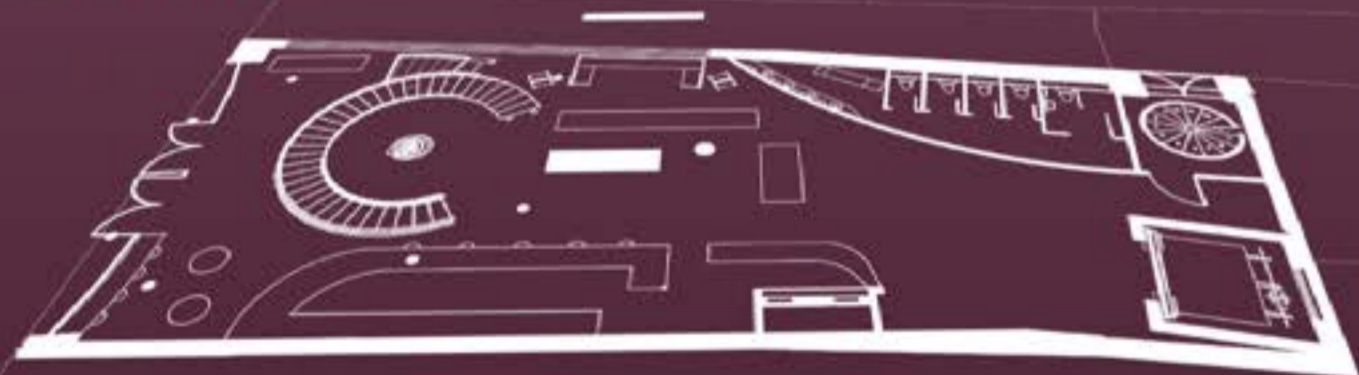
THIRD FLOOR FURNITURE PLAN



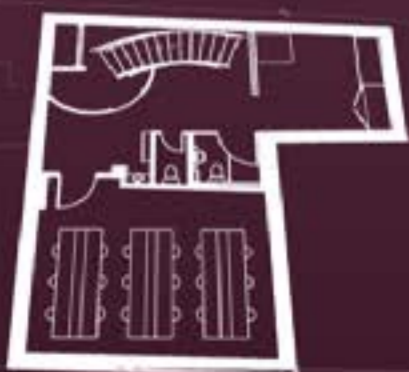
SECOND FLOOR FURNITURE PLAN



FIRST FLOOR FURNITURE PLAN



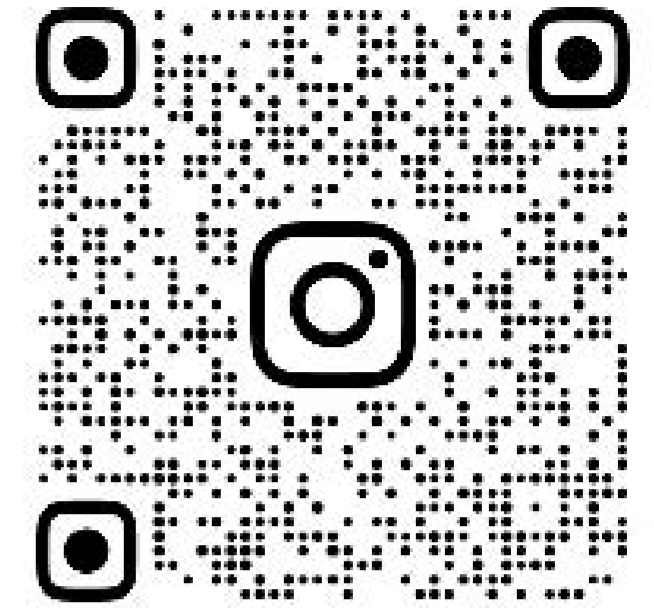
GROUND FLOOR FURNITURE PLAN



BASEMENT FURNITURE PLAN



Horticultural Planes & Greenhouse



Horticultural Lab & Material Fabrication Lab



Facade



Mixed Study Space



Ground Floor & Market Level



Microbiology & Cultures Lab

