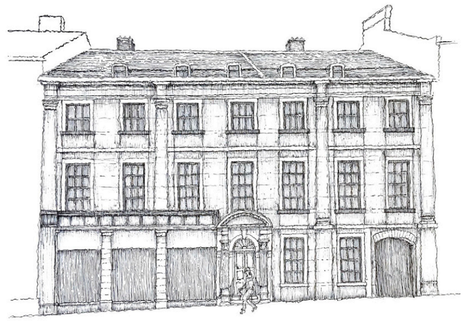
# Living Laboratory at the Assembly House

## Context & Adaptive Potential

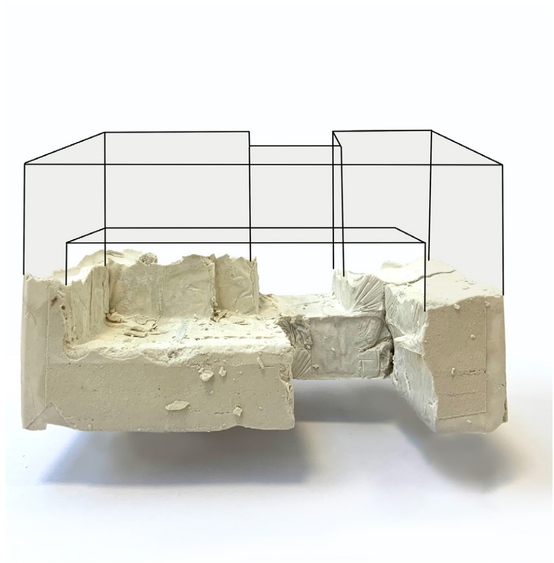


*Sketch of Front Elevation*

Inspired by the destructive growth of the ivy on site, re-occupying the building, the concept is to create a living laboratory which explores what is means to live sustainably as an urban resident. This landmark statement about biodiversity in Newcastle aims to engage people in sustainable food production, in order to bring about real societal and environmental change.
The building as a relic will be turned into a machine for growth, subsequently reactivating it's use.

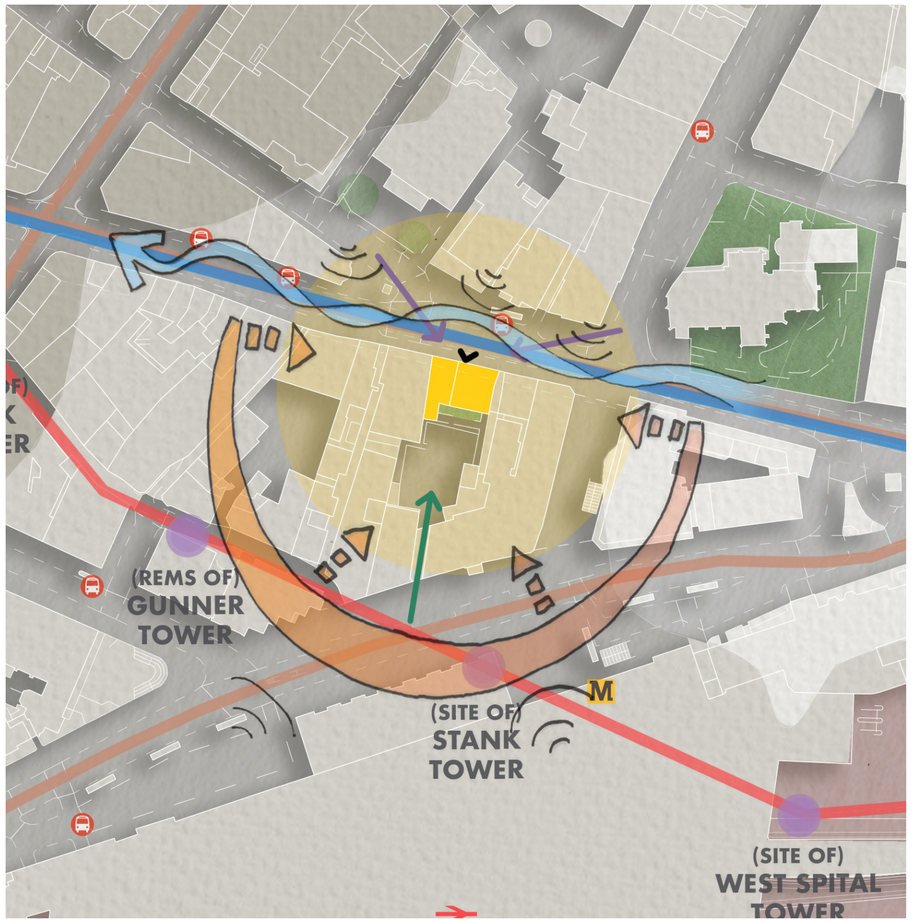
The primary objective is to engage, inspire and educate local people on the importance of biodiversity within our city centre, and how it can be used as a beacon of hope towards a more sustainable future, with a specific focus on food. The laboratory will also aim to contribute to the re-composition of Newcastle's ecosystem post-industrial revolution.

In terms of the design principles, there will be a strong visual distinction between growth (the plants, new insertions) versus deterioration (the decaying existing building).

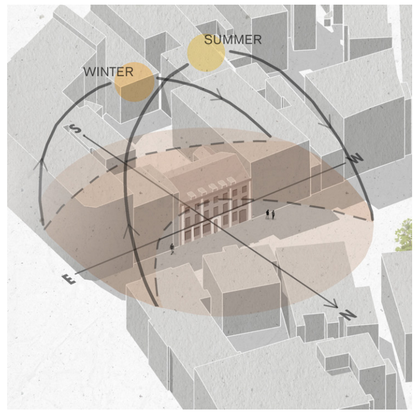


*plaster model of the non-listed areas of the existing building*

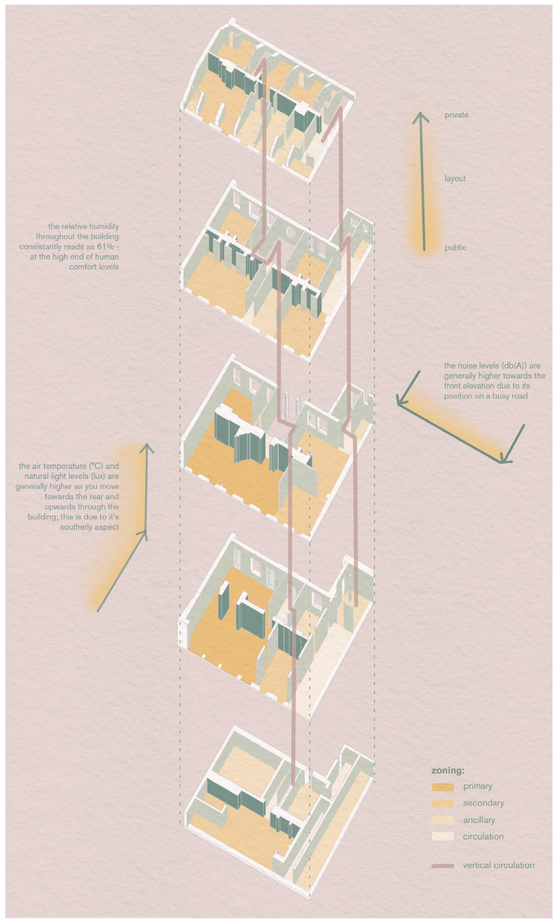
The juxtaposition of the deteriorating existing building fabric versus the regenerative plant growth happening within it sparks an interesting visual dialect.
**The building as a relic is turned into a machine for growth.**




*Site Analysis*



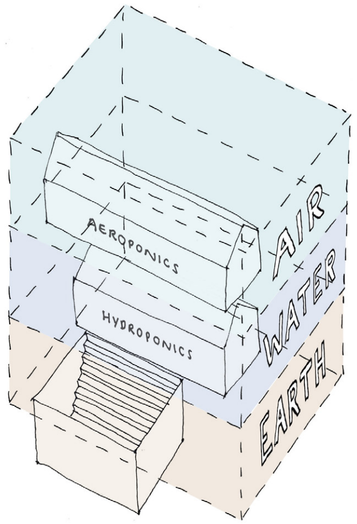

*Sun Path*




*Environmental Analysis*

*Model of Existing*

*Concept Model of Existing Destructive Ivy Growth*



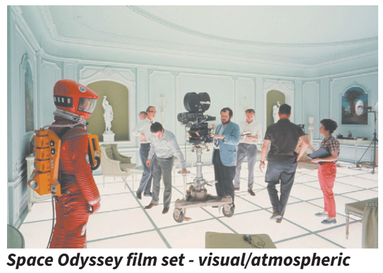

*Following the Natural Hierarchy*

The concept model and collage depict the destructive nature of the ivy re-occupying the site, and comment on how this idea of nature reclaiming buildings can be controlled and made into a positive as opposed to being feared.
This is exemplified with the introduction of a double-height, double-sided green wall where the ivy currently sits.

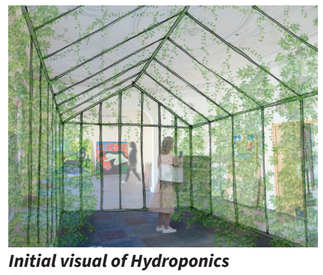
The greenhouses, arranged to follow their natural hierarchy, will be used to produce food to source both the cafe and the indoor/outdoor market (which also follows the Newcastle tradition of a chare, acting as a short-cut to train station in order to encourage more customers).

As a result, the building acts as a sort of interactive science museum, connecting people to nature and their food in a progressive and sustainable way.

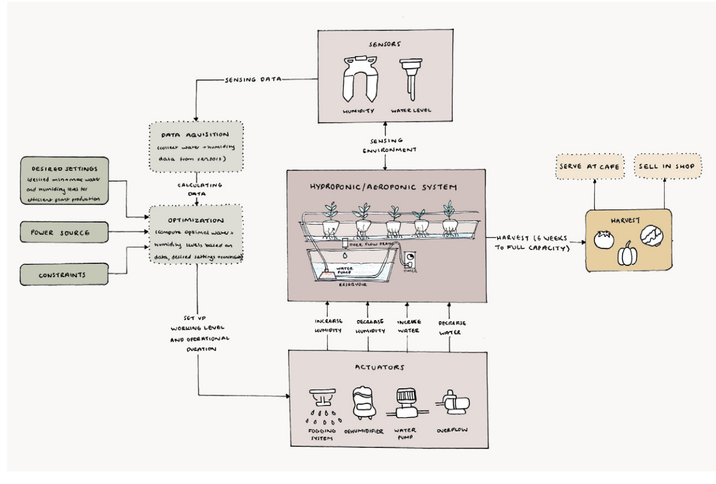

*Concept Collage*



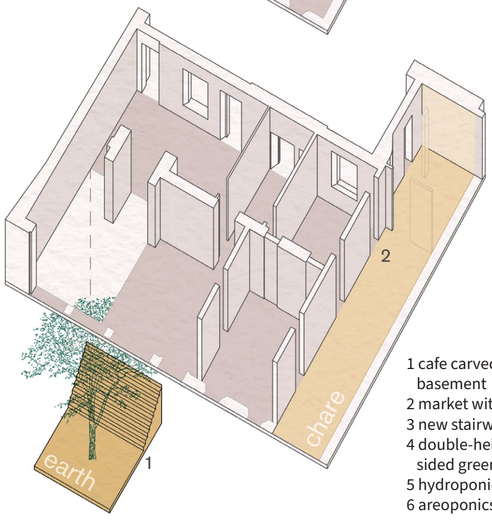
*Space Odyssey film set - visual/atmospheric concept*



*Initial visual of Hydroponics Greenhouse*




*Process of Hydroponic Growing*

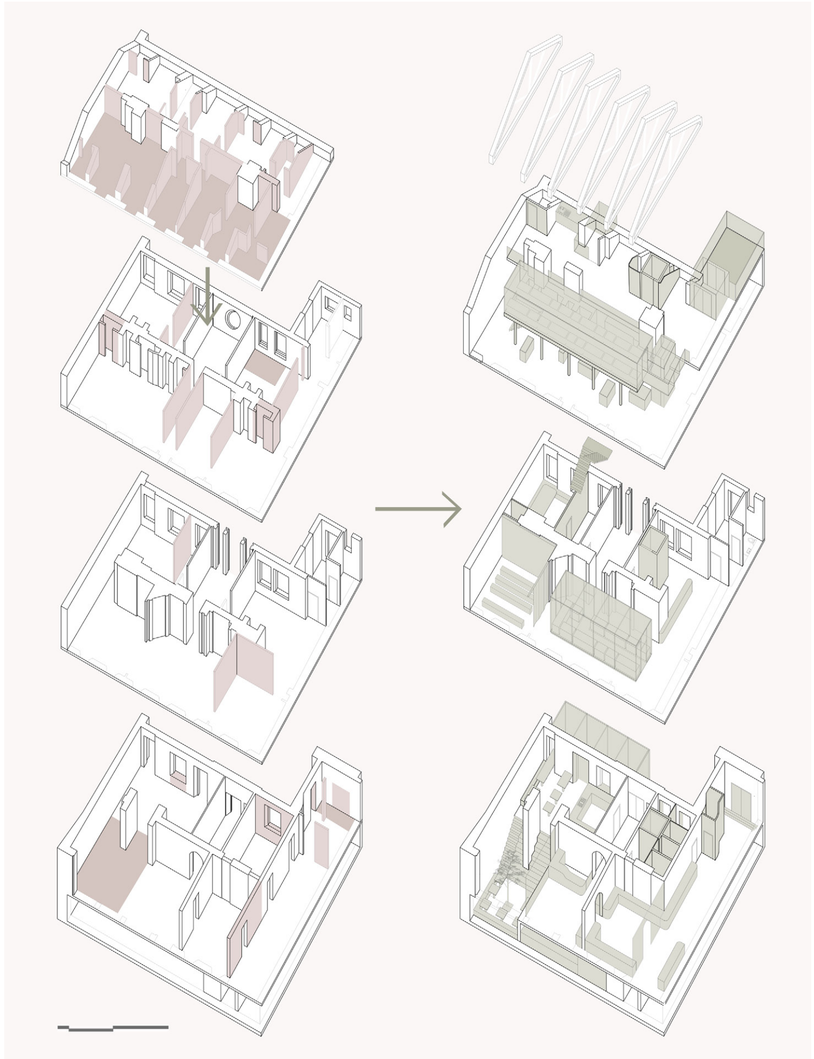



1 cafe carved out of basement
2 market within chare
3 new stairwell
4 double-height, double-sided green wall
5 hydroponics greenhouse
6 areoponics greenhouse

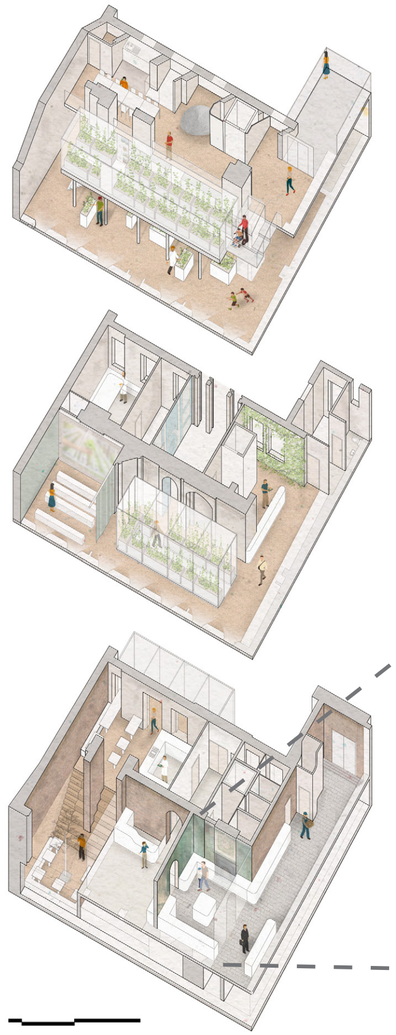
*Basic Design Principles*

# Concept Development & Functional Analysis

# Plans & Axono-metric Drawings

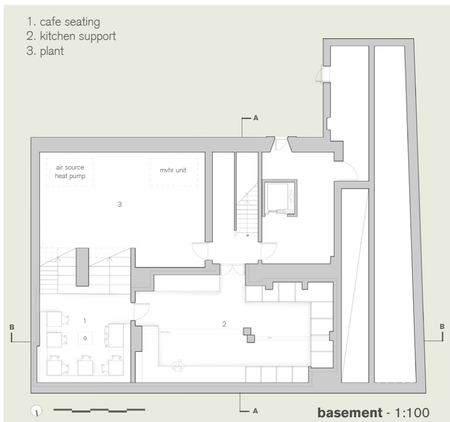


*Demolition (pink) and Insertion (green) to existing*

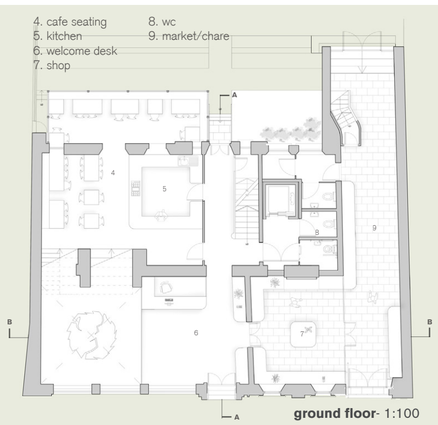


*Full Scheme Axonometric Drawing*

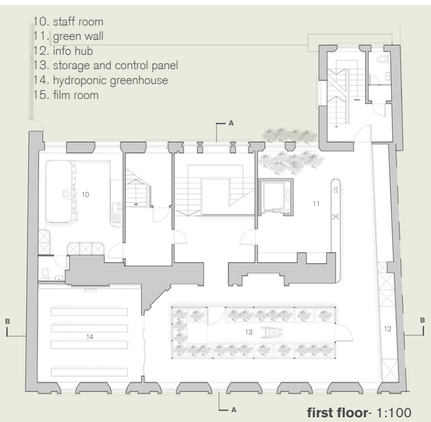
*Shop and Market Space - juxtaposition between new grp (growth) and existing plaster/brick (deterioration)*



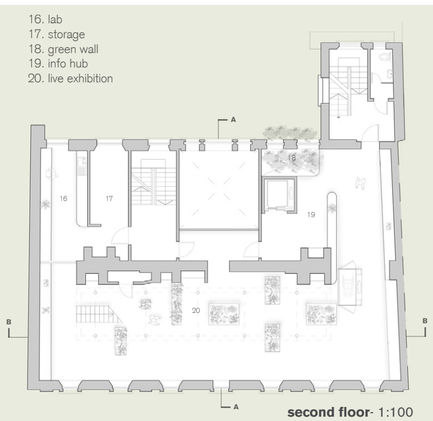

**basement** - 1:100



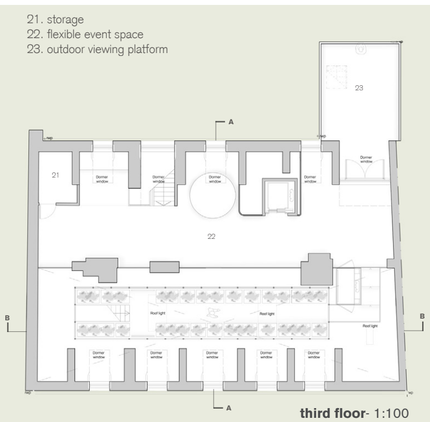

**ground floor**- 1:100




**first floor**- 1:100




**second floor**- 1:100




**third floor**- 1:100

# Sections & Environmental Approach

*Short Section*

*Long Section*

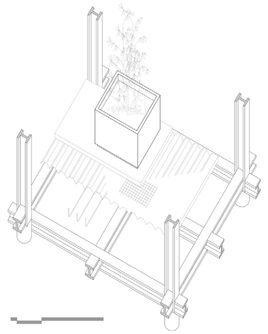
Since the purpose of the design is to explore what is means to live sustainably as an urban resident, it is only fitting that the building itself should also be as sustainably built/run as possible. The following are a few ways in which this will be achieved:

Positioning the greenhouses at the front of the building, supplementing this with artificial lighting, to create a healthy and consistent lighting environment for plant growth, with well naturally lit public spaces along the south facade.

Encouraging natural ventilation, introducing stack ventilation in the existing chimneys, and installing MVHR (with air source heat pump) in the cafe/kitchen space to reduce the relative humidity.

Using copper or zinc mesh sheets to prevent ivy attachment without compromising healthy plant growth. The ivy can then provide year-round shelter to a number of small birds and mammals, naturally insulate and cool the building, trap pollutants and attenuate noise.

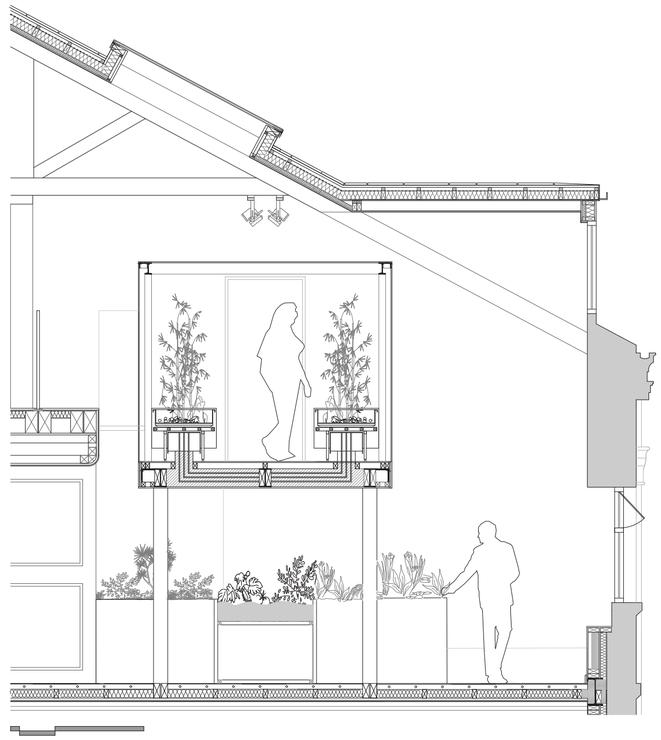
Add internal insulation and roof insulation where necessary, along with a secondary glazing film, to ensure a consistent air temperature.



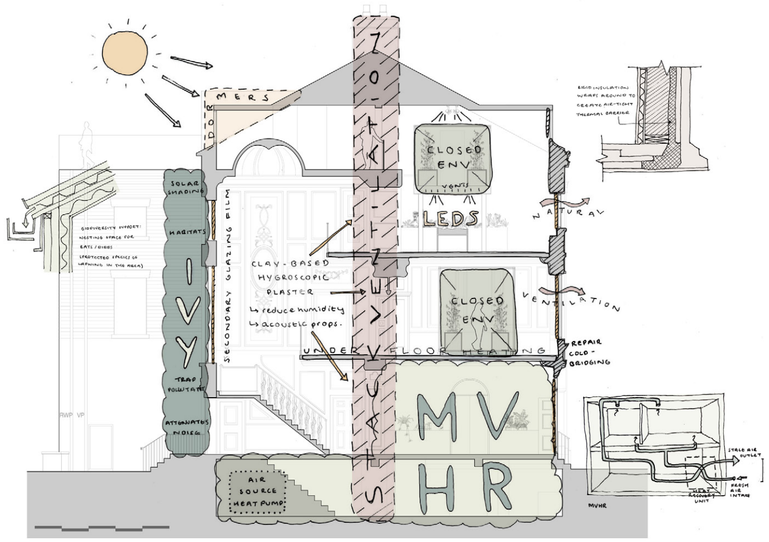
***Greenhouse Deck Detail***


***Sustainable Material Palette***

***Visual Material Palette***



***Technical Section of Aeroponics Greenhouse***



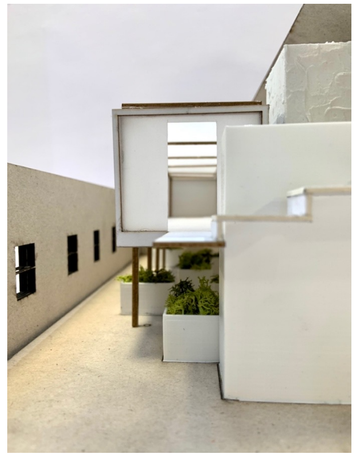

***Overview of Environmental Strategy***

*Use of Primary Insertion Space*

This primary intervention, located across the second and third floors, includes a ‘live’ exhibition on the lower level with the areoponics greenhouse above it.

All aspects of the intervention are fully wheelchair accessible, with the addition of a platform lift providing a route into the greenhouse, as well as a turning circle at the opposite end.

The average visitor is intended to first experience the live exhibition, filling their senses with the smell and taste of various herbs. They would then climb the stairs into the belly of the areoponics greenhouse, learning and engaging in the process of indoor food production. Finally, they would exit the greenhouse at the opposite end, making their way onto the third floor where they would be directed towards the outdoor viewing platform.



*1:50 Model of Primary Insertion: the Aeroponics Greenhouse*

# Model of Primary Insertion & Visuals

Growth versus deterioration

There is a clear distinction between the new and the existing, illustrated primarily in the contrasting use of materials. Interesting connections and conversations are formed between the traditional brick or textural stone of the existing versus the ‘futuristic’ lab-like GRP used for the fit-out.

The contrasting visual language is also carried into the newly extended cafe space; honouring the existing brick texture whilst introducing a new GRP fit-out. The introduction of a glazed steal frame extension is a nod to the greenhouses further up the building, as well as being a way of bringing in natural light and connecting diners to nature - a conceptually holistic approach.

*Visual of Cafe*