

2025 MERIT AWARD

Chantha Prak

BOSTON ARCHITECTURAL COLLEGE

FACULTY ADVISOR — SHAUN LYNCH

LYCEUM

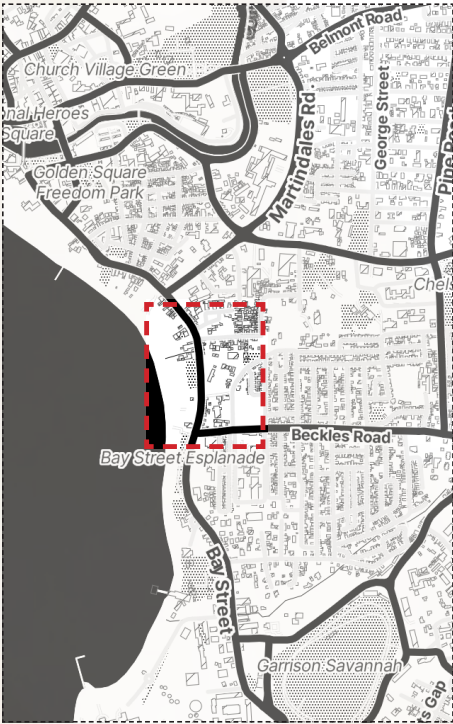
A traveling fellowship in Architecture



THE TERRACE

Barbados Restaurant + Research hub, ID : LF-12222

SITE LOCATION



is project located in the community of Caribbean Island, Barbados.

the charming seaside city of Barbados has long been a holiday destination for tourists, and the region's that dependence on imported food by promoting local farming, food autonomy, and community base design.



PROJECT DESCRIPTION

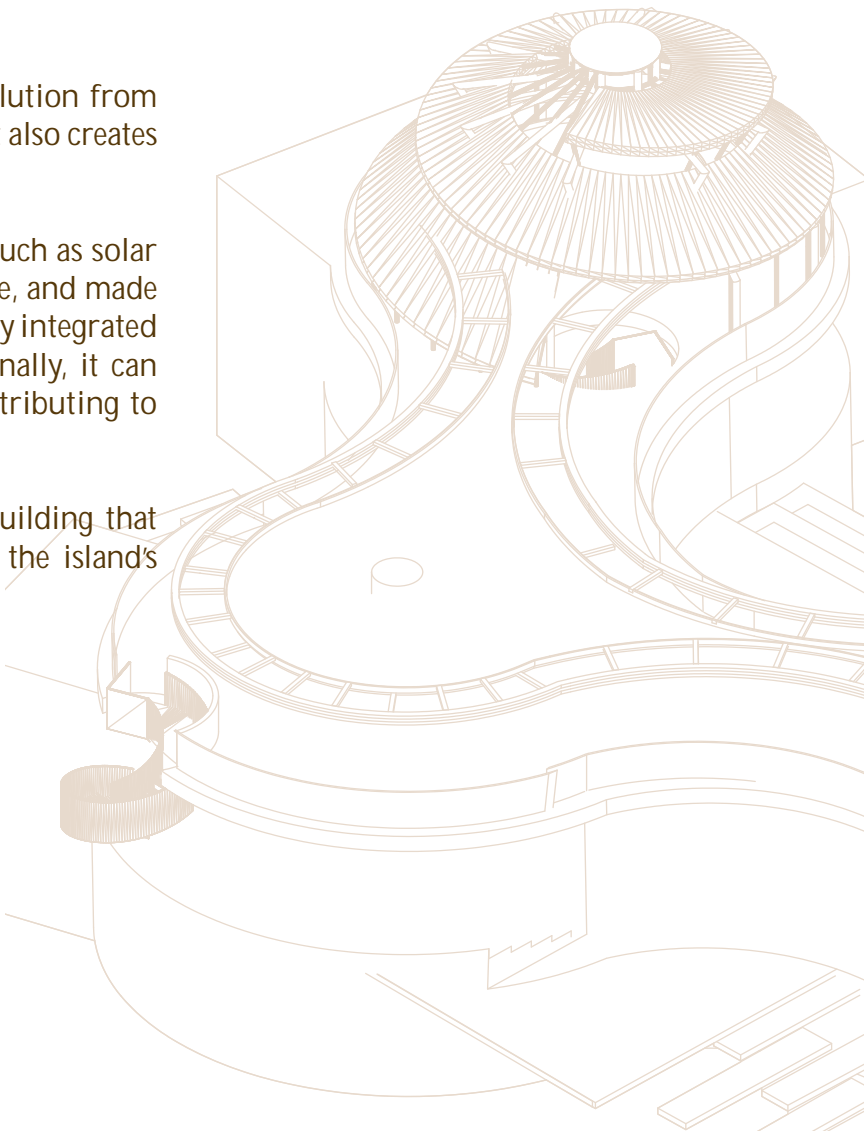
the terrace value of culture, to landscape, to architecture:

In this project, the landscape is important in shaping the architectural design. The site itself already has the best spot in the area, alongside green open space to the south and the ocean directly in front. By elevating the existing terrain into a terraced landscape, it will maximize usable space. This approach gives more space for plant cultivation and the integration with walking trails, creating an interactive and educational agricultural experience within the landscape.

Additionally, it acts as a natural barrier against noise pollution from Bay Street behind and works as a Storm Surge. Moreover, it also creates a natural drainage system, reducing the risk of flooding.

It also incorporates sustainable and innovative solutions, such as solar textile (E-Textiles). These E-Textiles are lightweight, flexible, and made from fabric (ideally polyester), allowing them to be seamlessly integrated into roofs and facades to generate clean energy. Additionally, it can also collect water through the fog catchment system, contributing to sustainable water management.

The new design will display a contemporary Barbadian building that reflects a blend of landscape and architecture shaped by the island's climate, local materials.



LANDSCAPE DESIGN CONCEPT

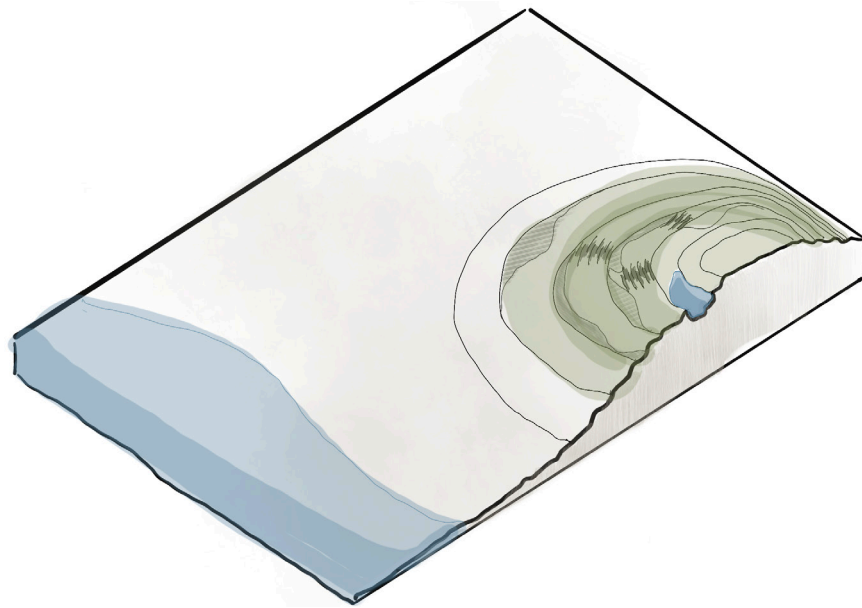
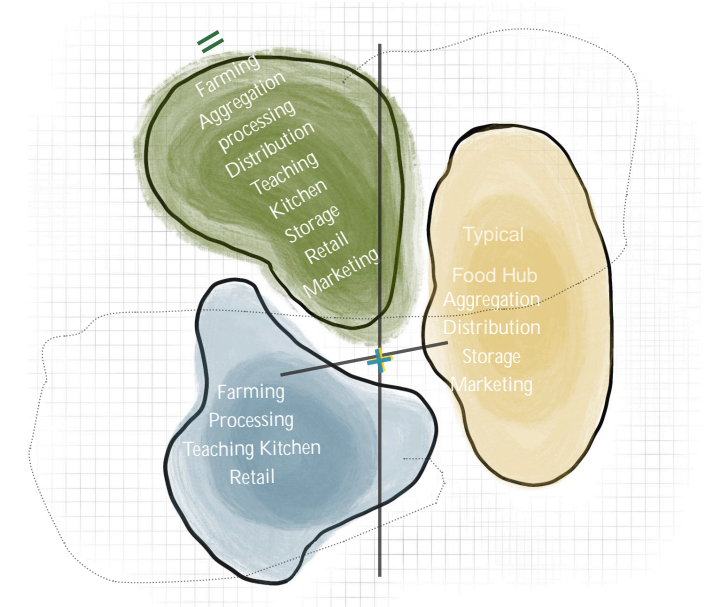


Fig. Concept Sketch Diagram of Terrace Landscape



Fig. Project references of the storm surge and Terrace Landscape from Barbados



DESIGN PROGRAM

e Terrace Landscape:

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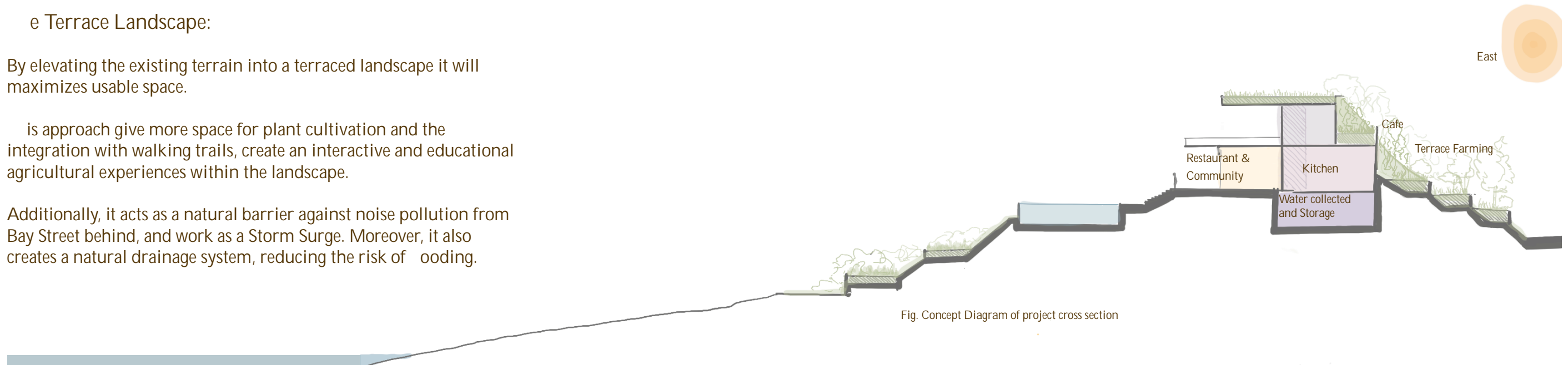
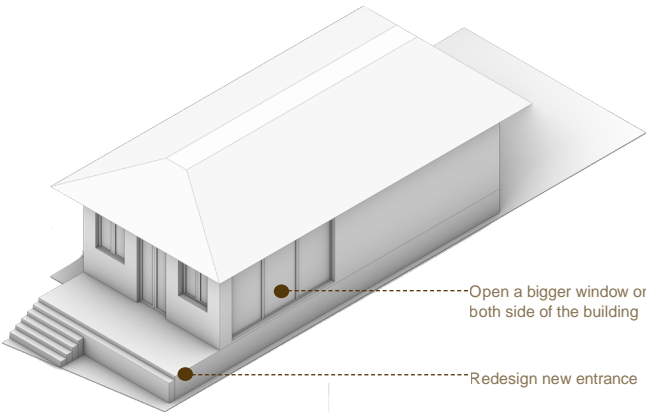


Fig. Concept Diagram of project cross section

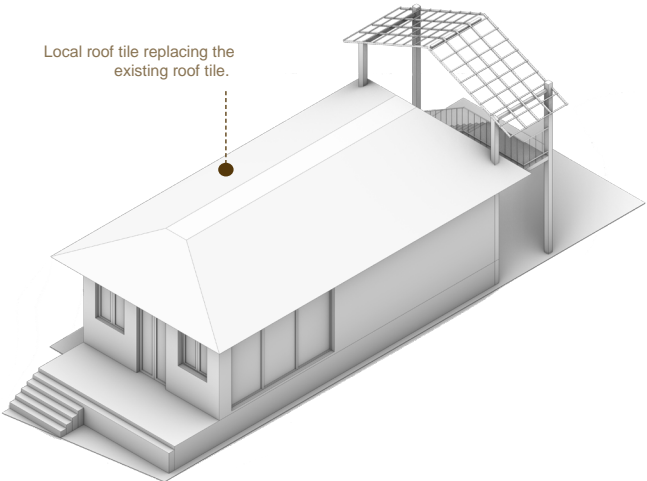
CAFE EXTENSION



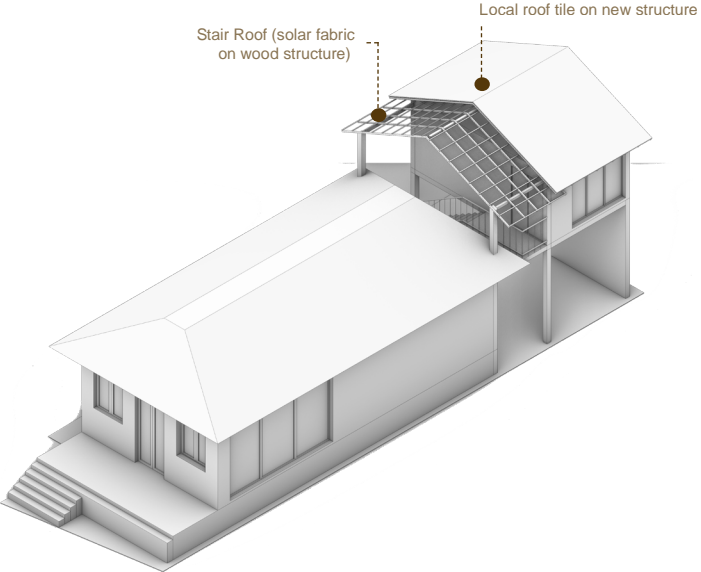
EXISTING



Phase 1: Renovating the existing building to a coffee shop

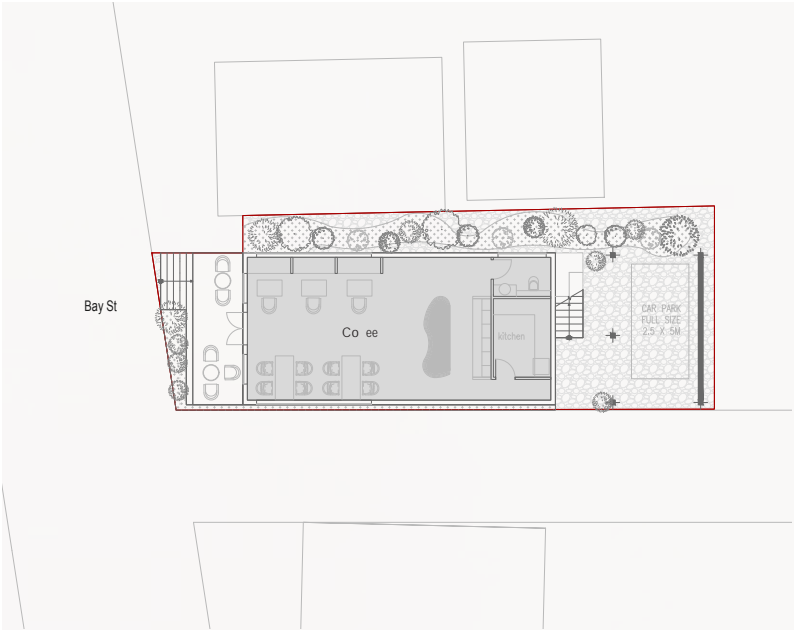


Phase 2: Extending backyard for a stair and parking.

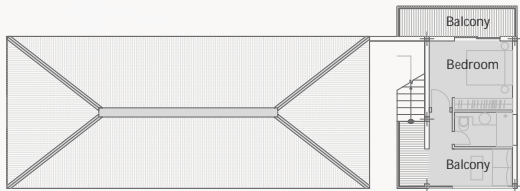


Phase 3: Extending the vertical structure on top of parking for chef's residence

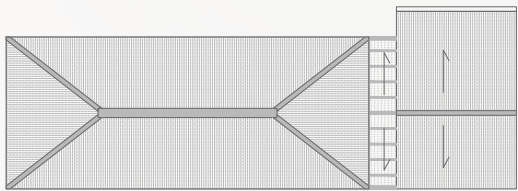
LAYOUTS AND SECTION



GROUND FLOOR



SECOND FLOOR



ROOF



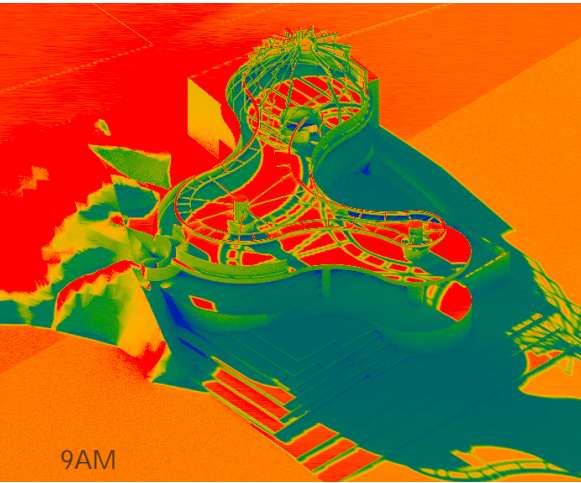
SECTION

HEAT ANALYSIS

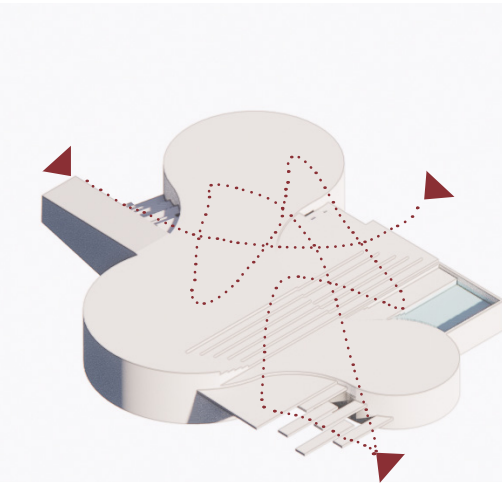
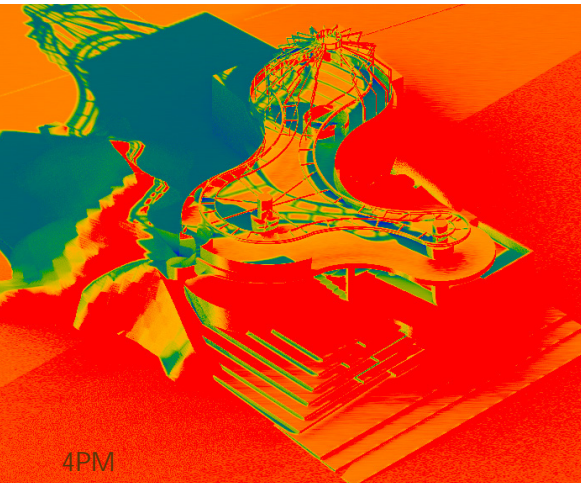
Heat analysis is a broad field that examines how the properties of materials change when subjected to temperature variations over time. In this project, it shows the potential to have a fabric solar system on the roof harnessing sunlight for energy while reducing heat gain. The terraced landscape not only displays the greeneries, but also provides natural shading during the day, offering a cooling effect for the site as well as sound pollution protection from the street. At the same time, it gains more land area that is able to produce the herb and tropical trees.

This will result in a life cycle of a sustainable system.

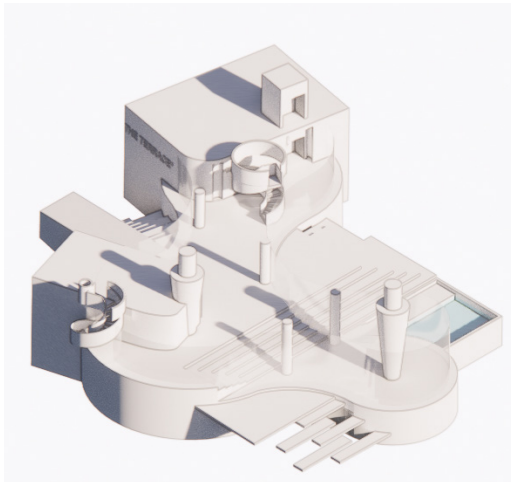
DIAGRAM



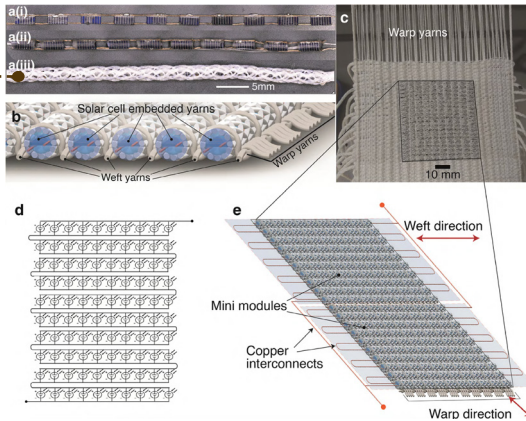
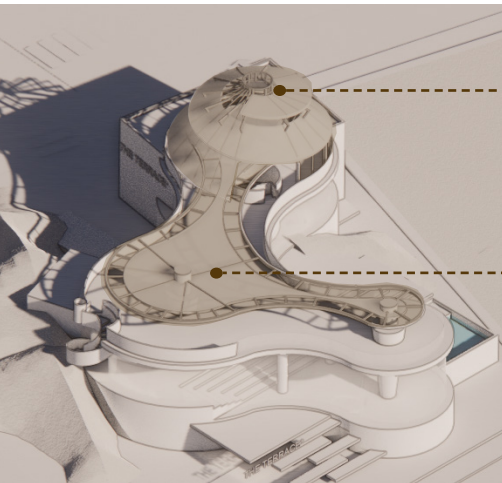
The red color shows where the most heat by the sun. Which has the potential to integrate a solar fabric



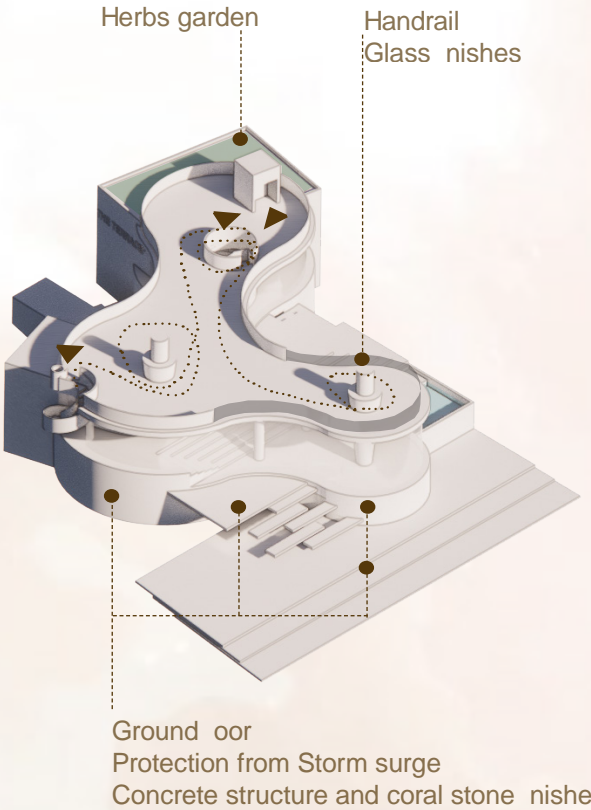
Ground floor entrances circulation



Accessibilities included 2 stair, a ramp, and lift



Solar fabric will use as the roof shading



PROPOSE MATERIALS

In Barbados, building materials are chosen based on the island’s climate, historical influences, and availability.

is project uses a combination of natural, reused, and modern materials, including coral limestone, reused concrete from the existing building, steel reinforcement, glass, and aluminum.

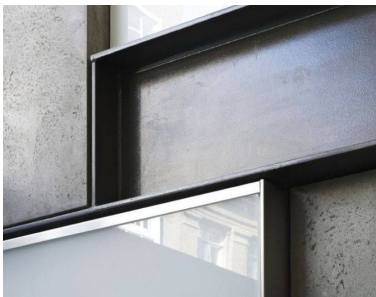
It also incorporates sustainable and innovative solutions, such as solar textile panels. These panels are lightweight, flexible, and made from fabric (ideally polyester), allowing them to be seamlessly integrated into roofs and facades to generate clean energy. Additionally, it can also collect water through the fog catchment system, contributing to sustainable water management.



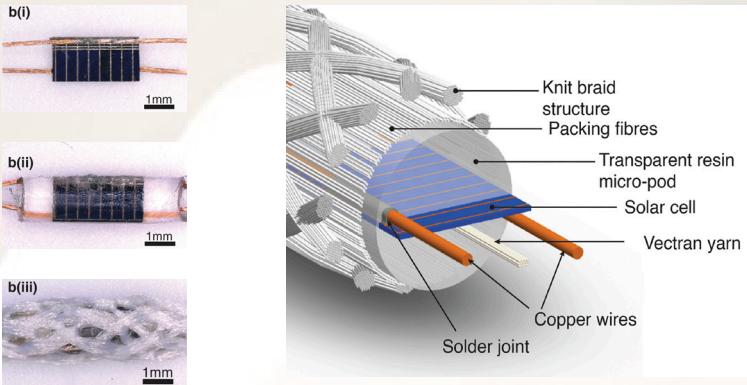
Coral Limestone



Fabric



Concrete, Steel, Glass



E-Textile research by advance textile research group
Nottingham Trent University

Testing sample 45.5mm x 44.5mm, under 100% of sunlight can harvest ~2.15mw/cm² or ~21.5w/m²

Sources:
<https://www.mdpi.com/2504-3900/32/1/1>
<https://onlinelibrary.wiley.com/doi/10.1002/pip.3229>
<https://www.mdpi.com/1996-1944/16/11/4129>

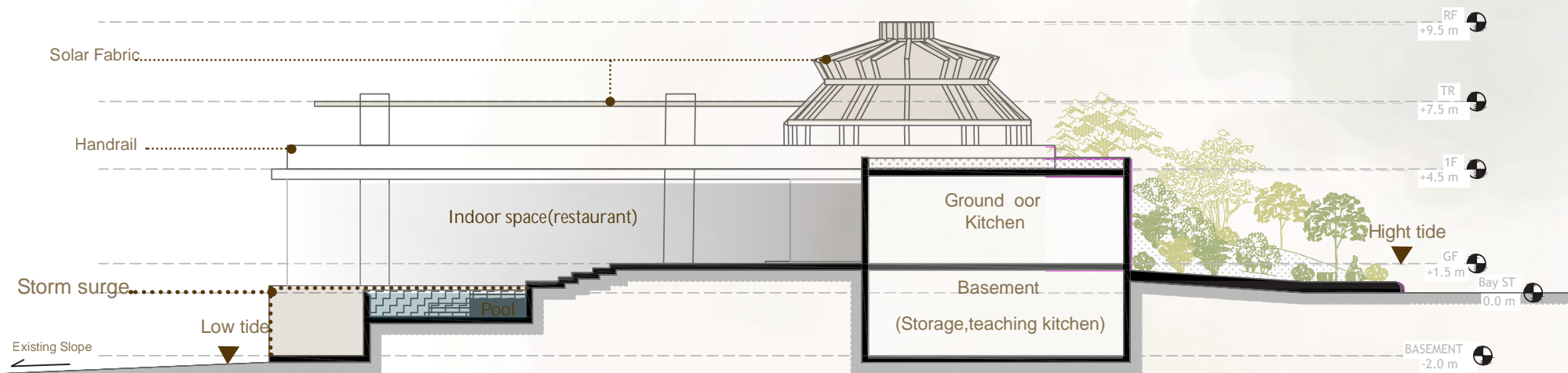
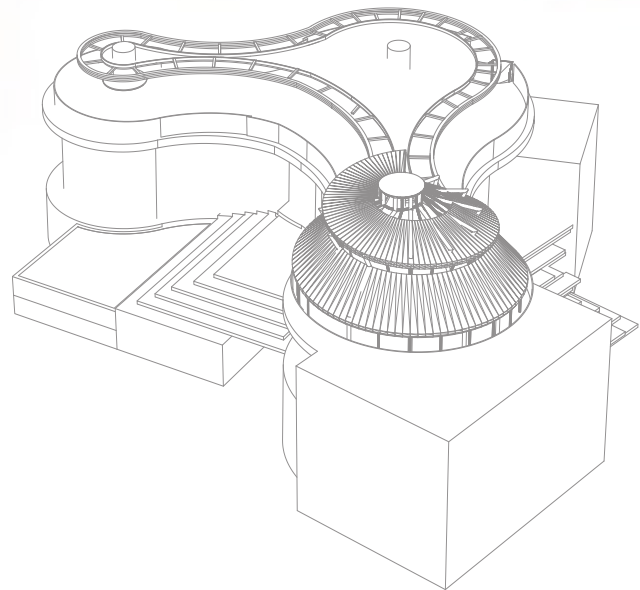
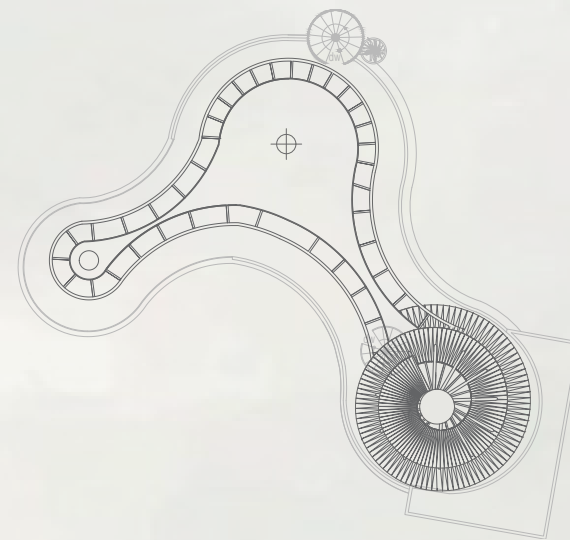
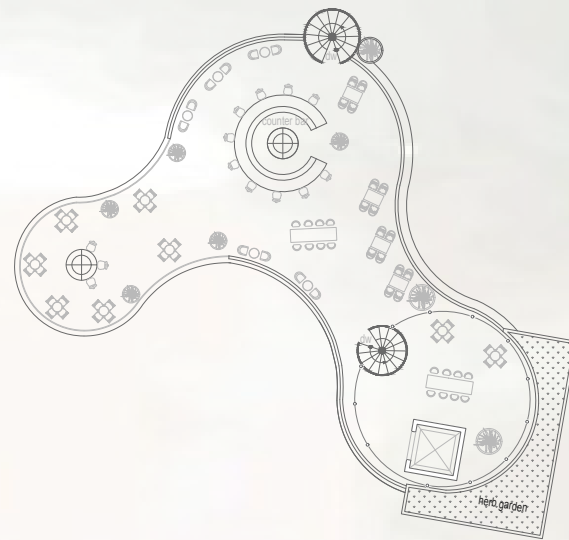
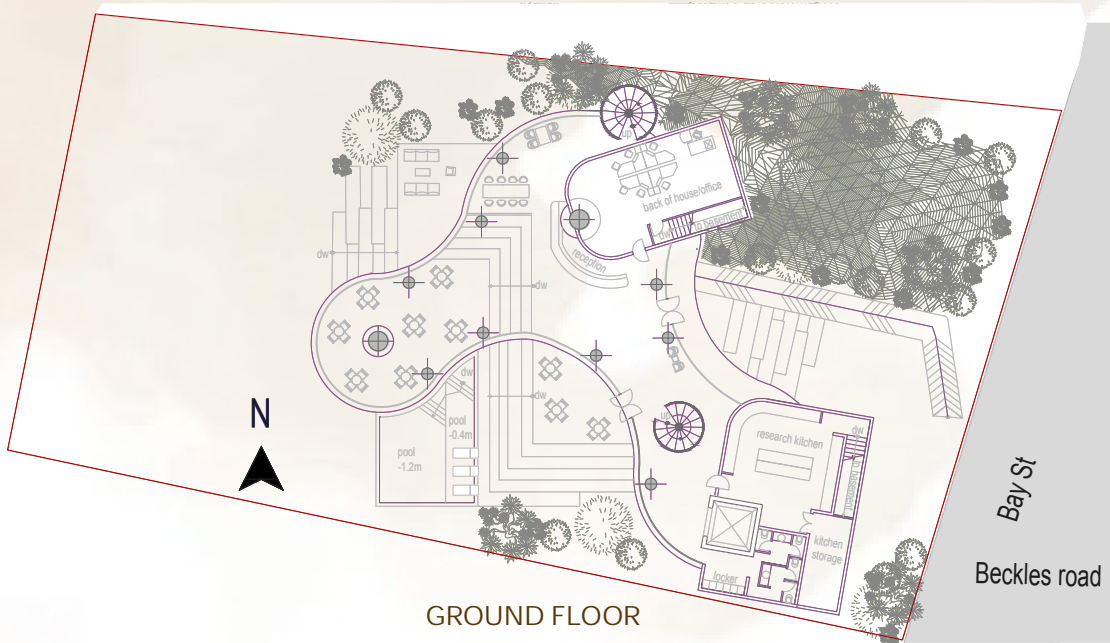


Fog Catchment

- The CloudFisher fog collector mounted on the mountain in Morocco can harvest up to 36,000 litres of water a day. It can harvest between 4 to 14 L (1 to 3.5gl) of water / sqm.
- The project in Big Sur, CA can harvest up to 36 L (9.5gl) of water / sqm in a very foggy day with high wind speed. Typical amount that capture from 1 - 3L (0.26 - 0.8gl) / sqm.

Source:
<https://www.designboom.com/technology/cloud-fisher-fog-net-water-foundation-02-02-17/>
<https://csumb.edu/magazine/out-pacific-air/>

RESTAURANT LAYOUTS AND SECTION





Bird-eye View



Entrance from the Bay street View



Twilight View



Main stair



Pool View to the Bay street entrance



View from the beach