

# STRENGTHENING INITIATIVES IN URBAN FARMING AND FOOD SECURITY THROUGH A MIXED-USE URBAN AGRICULTURE CENTER IN QUEZON CITY

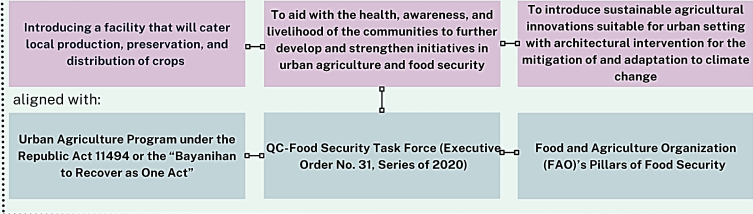
## Problem Statement



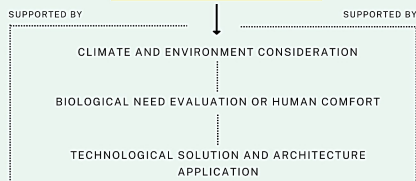
## Goal

The goal of the project is to promote urban agriculture development, awareness, and livelihood opportunities at the same time introducing innovation for mitigation of and adaptation to climate change through architectural intervention and thereby contributing to the strengthening of food security in urban areas.

## Objectives



## BIOCLIMATIC DESIGN

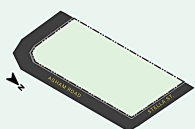


### Inclusivity

Promoting awareness of urban agriculture by allowing an inclusive and accessible facility that will encourage social participation, engagement, and human comfort

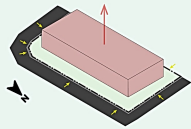
### Connectivity

**Interior Connection:** effective connection of each spaces for efficient flow of work and communication  
**Exterior Connection:** adapting the modern-philipino theme envisioned for QC-CBD to connect with surrounding environment



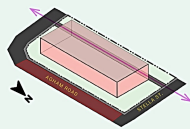
### LOT BOUNDARY

THE SITE IS APPROXIMATELY 18,000 SQM SITUATED IN BRGY. BAGONG PAG-ASA. A CORNER LOT ALONG AGHAM ROAD AND QUEZON AVE.



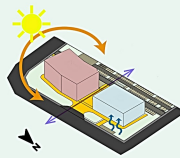
### BUILDABLE & UNBUILDABLE

THE MAXIMUM ALLOWABLE CONSTRUCTION AREA IS COMPUTED BASED ON PSO, ISA AND USA. LOT EASEMENTS ARE APPLIED. MACA IS NOT MAXED TO ALLOW MORE GREEN SPACES IN THE SITE.



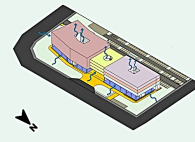
### ROAD NETWORK

CAR PASSAGEWAY IS PLACED AT THE REAR SIDE OF THE SITE TO PRIORITIZE PEDESTRIANS ON THE FRONT SIDE. THIS IS ALSO TO PREVENT ADDITIONAL CONGESTION OF CARS ALONG AGHAM ROAD SINCE ENTRANCES AND EXITS ARE SITUATED IN QUEZON AVE. AND STELLA STREET.



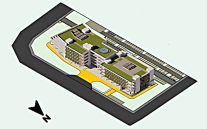
### ORIENTATION

THE BUILDING IS THEN DIVIDED INTO 2 TO ALLOW MORE ACCESS AND NATURAL LIGHTING AND VENTILATION IN ROOMS. THE VERTICAL FARM IS ORIENTED TOWARDS THE SOUTH TO MAXIMIZE SUN EXPOSURE FOR THE PLANTS AND SOLAR PANELS. THE HEIGHT DIFFERENCE OF THE VF BUILDING ACTS AS A SHADE FOR THE OTHER BUILDING WHERE THE OFFICES, LABORATORIES, AND TRAINING ROOMS ARE SITUATED.



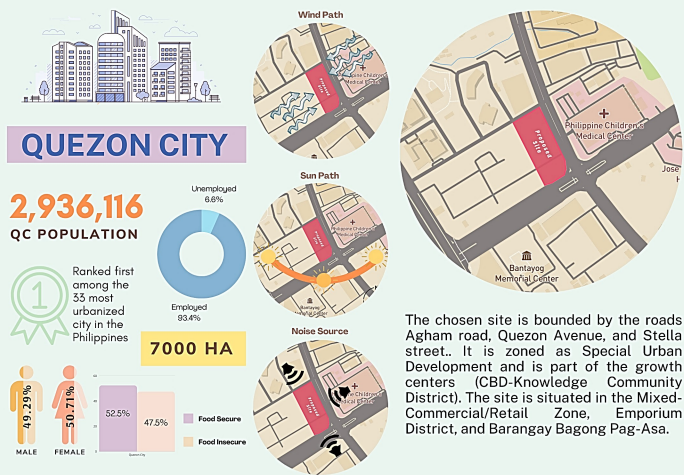
### ZONING

PUBLIC SPACES TO PRIVATE SPACES ARE SITUATED FROM THE GROUND FLOOR TO THE UPPER FLOORS RESPECTIVELY. ATRIUM IS PROVIDED IN EACH BUILDING COVERED BY A SKYLIGHT FOR ADDED LIGHTING AND VENTILATION. REQUIRED PARKING IS COMPUTED



### BUILDING ENVELOPE

APPLICATION OF DESIGN CONCEPTS TO COME UP WITH THE FACADE AND OVERALL DESIGN OF THE URBAN AGRICULTURE CENTER



### Traditional Farming

Crops are grown horizontally occupying more land

- 80% SOIL**  
Uses at least 80% soil to grow crops
- 50% CROPS**  
are not harvested
- 70% WATER**  
uses 70% of fresh water
- LONG DISTANCE**  
Average 2400-4000km distance
- PESTICIDES**  
Uses pesticides
- LESS YIELD**  
Less crop yield with the same land use as VF
- MORE LAND**  
Uses more land to produce same amount of yield as VF
- SLOWER**  
slower crop cycle



### Vertical Farming

Crops are grown vertically decreases the need for agriculture land

- 0% SOIL**  
uses no soil to grow crops
- 10% CROPS**  
only 5% crops are not harvested
- 70-95% LESS**  
uses 70-95% less water
- LOCAL**  
Reduces need for long distance transport
- 0% CHEMICALS**  
No use of chemical fertilizers
- MORE YIELD**  
more than 10x crop yield with the same land use as traditional
- LESS LAND**  
Less land to produce the same amount of yield as traditional
- FASTER**  
faster crop cycle



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## LECTURE ROOMS



LECTURE ROOMS CAN ACCOMMODATE A MAXIMUM OF 30 STUDENTS. THE SIZES OF LECTURE ROOMS CAN BE MODIFIED FOR A NORMAL SETUP WITH A 30-STUDENT CAPACITY AND A NEW-NORMAL SETUP WITH ONE CHAIR APART WITH 20 STUDENTS WHEN NECESSARY, SUCH AS COVID-19 SOCIAL DISTANCING PROTOCOLS.



FULL SETUP

HALF SETUP

## LABORATORY



THE RESEARCH AND DEVELOPMENT AREA CONSISTS OF DIFFERENT LABORATORIES FOR FURTHER STUDIES REGARDING VERTICAL FARMS, AGRICULTURE, AND FOOD PROCESSING.

LABORATORIES INCLUDE: MICROBIOLOGY LABORATORY, AGRICULTURAL BIOTECHNOLOGY LABORATORY, PRODUCTION MODULAR LABORATORY, AND DIGITAL AGRICULTURE AND DATA ANALYTICS

## MARKET



THE CULTIVATION AREA IS WHERE THE CROPS WILL MATURE. DIFFERENT MODULES ARE AVAILABLE FOR HYDROPONICS, AQUAPONICS, AND AQUACULTURE

THE PACKAGING AREA IS WHERE THE HARVESTED CROPS WILL BE PACKED FOR DISTRIBUTION. IT WILL THEN BE TEMPORARILY STORED IN THE STORAGE AREA AND BE DISTRIBUTED TO THE GROUND FLOOR MARKET OR OTHER MARKETS AND SUPERMARKETS. ASIDE FROM THE CROPS, THE MARKET WILL SELL FISH FROM THE AQUAPONICS SYSTEM, FARMING EQUIPMENT SUCH AS COMPOST FERTILIZERS, GROWING TRAYS, SNAP SOLUTIONS, ETC.

## TRAINING ROOMS



WE HAVE THE TRAINING ROOMS FOR BOTH AGRICULTURE AND PROCESSING. THE FOOD PROCESSING AND PRESERVATION TRAINING WILL TEACH PEOPLE METHODS AND TECHNIQUES ON HOW TO PREVENT FOOD WASTE AND MAKE USE OF THE NEARLY ROTTEN CROPS INTO SOMETHING PROFITABLE WHILE THE AGRICULTURE TRAINING WILL TEACH PEOPLE ON HOW THE VERTICAL FARM WORKS.



FULL SETUP NORMAL

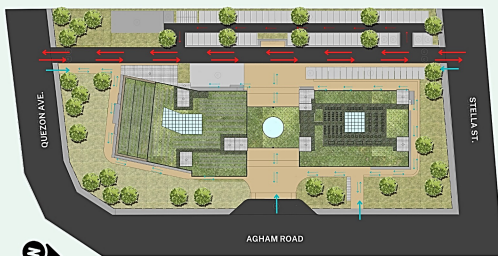
FULL SETUP NEW NORMAL

## SITE DEVELOPMENT PLAN

THE CAR PASSAGEWAY AND PARKING FOR THE SITE ARE SITUATED IN THE REAR AREA TO PRIORITIZE PEDESTRIAN ACCESS IN THE FRONT, LEFT, AND RIGHT SIDES OF THE SITE.

HAVING THE ENTRANCE AND EXIT OF VEHICLES OF THE SITE TO BE SITUATED IN QUEZON AVE AND STELLA STREET WILL PREVENT ADDITIONAL CONGESTION ALONG AGHAM ROAD WHERE TRAFFIC USUALLY OCCURS.

ENTRANCES AND EXITS OF PEDESTRIANS ARE SITUATED 1 ALONG QUEZON AVE. WHEREIN THERE IS AN EXISTING BUS STOP NEARBY, 1 ALONG STELLA STREET, AND 2 ALONG AGHAM ROAD. AS YOU CAN SEE THE PEDESTRIANS REALLY HAVE FLEXIBLE ACCESS AROUND THE SITE WHICH GIVES A PARK-LIKE VIBE.



vehicular entrance and exit  
pedestrian access

## EXHIBIT AREA



UPON ENTERING THE BUILDING, NUMBER OF EXHIBIT STANDS ABOUT AGRICULTURE, URBAN FARMING, CLIMATE CHANGE, AND VERTICAL FARMING WILL IMMEDIATELY GREET THE VISITORS. IT IS A WAY FOR PEOPLE TO LEARN ABOUT URBAN AGRICULTURE AND RELATED TOPICS AND BECOME MORE AWARE OF THE ISSUES AND SITUATIONS RELATING TO IT.

TACTILE GUIDES CAN BE SEEN IN THE BUILDING TO GUIDE PWDS ESPECIALLY THOSE WHO ARE VISUALLY IMPAIRED.



## LOBBY

## CAFETERIA



## CAFE



## LIBRARY



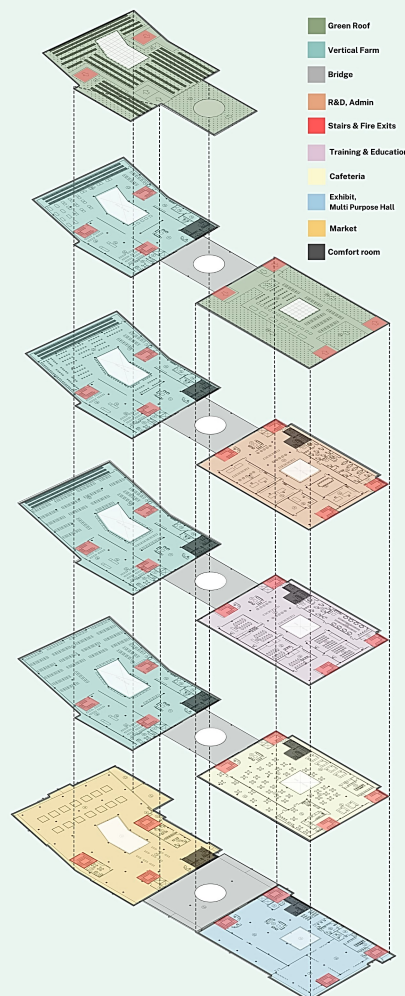
## PACKAGING AREA



## MULTI-PURPOSE HALL



## MARKET



- Green Roof
- Vertical Farm
- Bridge
- R&D, Admin
- Stairs & Fire Exits
- Training & Education
- Cafeteria
- Exhibit
- Multi Purpose Hall
- Market
- Comfort room

## MATERIALS & FEATURES



CONCRETE



BAMBOO



CURTAIN WALLS



DOUBLE SKIN FACADE



GREEN ROOF



SOLAR PANELS



RAINWATER HARVESTING



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