The project goal was to introduce bamboo into Haiti’s local construction. In teams, our task was to design a prototype house for a Haitian family. The overall design of core house had to be economical, easy to build, and be able to expand.

Haiti is an island that is prone to earthquakes and hurricanes. The lack of building materials, working, and construction knowledge tend to result in devastating outcome. Haiti also faces a deforestation issue; only 1.4% are the remains of its’ forests. Bamboo not only can help start reforestation, but could help Haitians because it is a type of low cost construction material, and the effect of producing bamboo could help improve Haiti’s economy. Another issue in Haiti would be lack of water; we design a roof to become rainwater collector.

Bamboo is seen, as a “poor man timber” in Haiti, because locals do not know how resistant the material is to natural disasters. Therefore, we designed the core house to be constructed out of Haiti’s domestic bamboo species like Guadua Angustifolia Kunth, which is referred to as vegetal steel. One challenge was taking in consideration that Haitians psychologically feel secure living in concrete made buildings; therefore we designed a house that uses bamboo for its main frame work structure while concrete can be use for cladding.

Core house detail description of concept our core house concept was having the first floor be designed in a way that the owner can later extend the floor above the initial core house floor. When we had an opportunity to engage with community, we found that some families would like to rent second floor to other families. Therefore, we came up with various floor plan options while maintaining the Haitian architectural elements. Since Haiti’s geography is mountainous, we came up with the house shape to be easily divided to be elevated accordingly to the slope or flat land. To keep house cool, we created hanging plants along side the roof edges to provide shade and have greenery visualization in the neighborhood. Also, we proposed to recycle the scraps of construction bamboo, because thinner bamboo scraps could be expressed in their panel design whereas one can make a hole in the bigger bamboo scrap to plant vegetables.

We consider Haitian’s lifestyles into our project such as their need for porch and having kitchen outdoor. Porch acts as the living room of their house and meals are cooked outside of the house due to climatic reason. Our focus was the form of shared Lakou. Lakou in Haiti is a shared courtyard where neighbors share chores, food, space and look after one another. Haiti’s Lakou usually are located at the interior of the block where neighbors interact with one another like families within the courtyard. Thus, our project title is called “Neighbor is family”.

Overall we had the opportunity to design a core house for Port-au-Prince that is low cost, earthquake and hurricane resilient, easy to build by people with little training and to be made with sustainable material to help with Haiti’s reforestation.
MASTER PLAN

CONCEPT DIAGRAM

Single Core House  Doubled Core House  Duplicated  Duplicated  Shared Courtyard Space
CORE HOUSE FLOOR PLAN

POSSIBLE CURTAIN PANEL PIPE TO COLLECT RAIN WATER 1.50 m 3.00 m 6.00 m 3.00 m

FIRST FLOOR

SECOND FLOOR

LIVING SPACE KITCHEN PORCH BATHROOM

LIVING SPACE KITCHEN PORCH BATHROOM

VARIATIONS FOR DIFFERENT SITUATION

ONE HOUSEHOLD

TWO HOUSEHOLD

CONSTRUCTION DIFFERENCES

CORE HOUSE ON FLAT LAND MODIFIED CORE HOUSE ON SLOPED LAND

CORE HOUSE EXTENDED CORE HOUSE

EXTENSION INCLUDES BUILDING SECOND FLOOR

ID Number: 672
CONSTRUCTION DETAIL

FOUNDATION JOINT

FLOOR JOINT

FOUNDATION JOINT

ROOF JOINT
METAL SHEET TO BE LATER LAYED OVER

WALL STRUCTURED WITH BAMBOO AND COVERED WITH CONCRETE

BAMBOO FLOORING WITH CONCRETE FILLED

BAMBOO COLUMN JOINT

WATER STRATEGY

DOWNSPOUT OPENING

SLANTED METAL SHEET ROOF

DOWNSPOUT

WATER STORAGE TANK

KITCHEN

LAUNDRY

SHOWER

PLANT

Average annual rainfall approx.: 137 cm

CLIMATE TEST

SUN TEST

WIND TEST WITH SPEED OF 80 M/S

ID Number: 672
PLANTING SCREEN PANELS

USING LEFTOVER BAMBOO TO CREATE POT AND PANEL DESIGN
Plants grown on the bamboo pots can provide shade and privacy

OPTIONAL ENCLOSED PORCH
WINDOW CAN FOLD TO BE USED AS A COMMERCIAL SPACE.