Section B_Construction Team

PROTOTYPE II & CUSTOMER FEEDBACK

Why are we doing this test?
To check if our design is feasible or not. To provide a more comprehensive version to present to the client and public.

Test Objectives Description

What are the specific test objectives?
To ensure the feasibility of our construction, and this will be answered through the results.
To test if our plan will really be a solution to our client's problem.
To test if our materials are effective based on the client's specifications, and our comprehensive planning.

What exactly is being learned or communicated with the prototype?
The feasibility of the construction: if it could really be constructed, if it could withstand in different weather or seasons, if it is compatible with the hydroponics system that will be placed inside.

What are the possible types of result?
Our design may be too impractical for the climate of the area it will be placed in.
Our design may be unrealistic from a structures standpoint.

How will these results be used to make decisions or select concepts?
The original design may have to be modified, or if it cannot be fixed, a completely new design may be necessary.

What are the criteria for test success or failure?
This will be based on our design criteria and if we have met them.

What is going on and how is it being done?

Describe the prototype type (e.g. focused or comprehensive) and the reason for the selection of this type of prototype.
High fidelity physical comprehensive - we are making a physical scaled down version of our design and integrating all of the attributes.

Describe the testing process in enough detail to allow someone else to build and test the prototype instead of you.

1. Build the prototype following the sketches of the greenhouse and the plan, using the materials outlined in Deliverable E - Project Plan and Cost Estimate.

2. Test the dimensions. Does the door open? Can you enter the greenhouse? Does the hydroponics system fit inside?
3. Test the strength of material. Simulate the weight of typical snow falls on the roof. Can the roof support this weight? Are there any deflections?
4. Test the water collection method. Does the container leak? Where does excess water go? Does the water flood the house?
5. Test the ventilation system. Are the plants able to survive inside the greenhouse? Does there need to be more ventilation? Less ventilation? How is the temperature control in the greenhouse? Note: simulations involving temperature may not be accurate as the internal temperature of the greenhouse is affected by the environment, which we cannot simulate in the lab.

What is being observed and how is it being recorded?
-The strength of materials: observation through time, research, material properties
-Spacial dimensions: observation,
-The temperature inside the building: temperature measurement, observation of the plants
-Water collection- amount of water collected, check the capacity of the storage tank

What materials are required and what is the approximate estimated cost?
See Deliverable E - Project Plan and Cost Estimate

What work (e.g. test software or construction or modeling work or research) needs to be done?
Before to prototype is complete construction will need to be done.

When is it happening?

How long will the test take and what are the dependencies (i.e. what needs to happen before the testing can occur)?
See our Gantt chart for a timeline of the construction. After construction we will be able to test and evaluate our prototype.

A separate test planning Gantt chart can be created to help to make sure that the testing fits with the overall project schedule or it can be defined as part of that schedule (i.e. as a sub-task).
Prototype testing can be defined as part of the preexisting Gantt chart for the whole project as a sub-task.

When are the results required (i.e. what depends on the results of this test in the project plan)?

The results are required before Design day, so we can adjust our design if necessary, or reflect on the results and discuss changes that can be made in the final report if there is no time or budget left to implement the changes.

Prototype Documentation:

Base (Oct. 25, 2018)

Framing (Nov. 1, 2018)