Project Deliverable H: **Prototype III and Customer Feedback**

GNG 1103 – Engineering Design

Faculty of Engineering – University of Ottawa

A.Test Plan

1. Define the purpose of the test Q: What are you trying to figure out or learn from your prototype?
To test if our greenhouse could supply the needs of the users while also keeping our client's specifications in priority. If our materials are or will be strong enough through time in spite of different weather or seasons if it could really conserve the plants inside, and if the temperature is also good not just for the plants, but also to the users.

2. Choose a specific design concept (or part of a concept) – Target measurable attributes
Client Specifications, Benchmarking, Selecting alternative concepts, Soliciting or generating improvement ideas, Analysis.

3. Choose a testing method Examples: analytical simulation, physical prototype test, etc.
Comprehensive
Analytical Simulation

- Strength of materials (compositions, deflections, stiffness, etc.)
- Water collection (Rain and precipitation, wind)

Physical prototype test:

- Strength of floor, walls, roof
- Roof Leaks
- Insulation (Temperature inside of the greenhouse, observation of plants)
- Water collection process (storage capacity, gutter strength and linking)
- Solar panel capacity
- Pest control (observation)

4. Perform the test
Physical prototype test:

- Strength of floor - every lab/work period, team members get on top of the base.
- Strength of the roof - once the roof is complete, place weights (or team members) on top of the roof to test if it can withstand the weight of the snow and solar panel

Temperature - once the walls and roof are installed, heat the inside of the greenhouse.
Water collection - once the gutters are installed, run water through the gutters.

5. Measure the important attributes, observe and record the results carefully

Check carefully for any deflections in the structure when testing the roof and floors.
For the testing of the internal temperature of the greenhouse, see how long the heater has to be on before the desired temperature is reached, and how long this temperature is maintained before the heater must be turned back on.
When testing the water collection system, check if there are leaks, and what happens if there is an overflow of water. Should the water tank overflow, the water should not leak into the structure, as this may cause mould and other issues.

6. Interpret the results (i.e. are they applicable?) and document your conclusions, reviewing them with others

When interpreting the data some will be more applicable than others. Obviously is there is a major structural problem that causes the greenhouse to be rendered useless, we will be able to go back, look at the data and rework the design and build. For documentation we will b e photographing the final product and recording any necessary data.

B.Feedback

Again, we had a meeting with the client but this time with a revised plan based on her suggestions and other specifications from the previous meeting.
The client thought our design and plan was very straightforward. She then reminded us of how we're going to keep the rats and other pests away.

C.Documentation: