Project Plan and Cost Estimate

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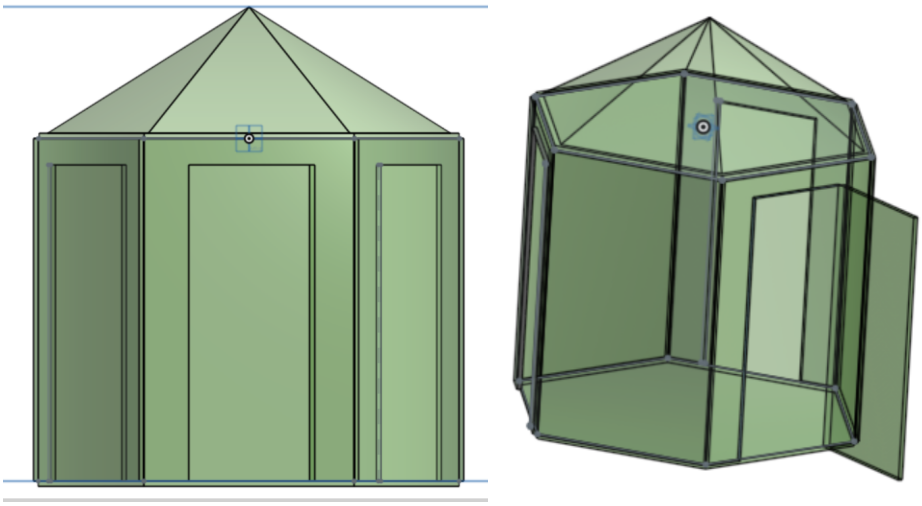
1 Final Detailed Greenhouse Design

Hexagonal Greenhouse Structure

- Height: 9 ft
- Bottom sides: 4 ft
- Base area: 48 ft^2
- Door height: 6 ft



2 Bill of Materials

Our budget is 400 but we have 3 Canadians hence we have a total of 700 dollars for the greenhouse structure budget. Polyethylene sheeting will be used as a glazing material since implementing plexiglass goes beyond our budget. For that reason, there will be a greater focus on the wooden framing to make it sturdy enough against any inconvenient weather.

3 List of Equipment Needed for Prototypes

NO	Product	Size	Use	Cost ($)
1	polyethylene sheeting	Around 215 m^2	Building structure	70$
2	Screws and Nails	About 100	Fastening	15$
3	Wood (For sides)	9ft (10 pieces)	Frame	290$
4	Door	6ft by 3ft Thickness: 3cm	Entrance	177.7$
5	Wood (For base)	4ft (7 pieces)	Base	180$

4 List of Project Risks

Weather hazards - We have to make sure the ends of the plexiglass are sealed properly to the structure to prevent any rain damage from affecting the plants inside the greenhouse.

Strength - We need to make sure the structure is strong enough to withstand any wind or danger that may happen to it.

5 Prototyping Test Plan

The following table will outline the structure of our team's first prototyping test.

Test ID	Test Objective	Description of prototype used and of basic test method	Description of results to be recorded and how these results will be used	Estimated test duration and planned start date
1	Evaluation/Proof of Greenhouse Concept	Simple small prototype made of household objects. At this stage, we are just testing that our proposed metrics and materials can produce a well-structured greenhouse. This will be a much smaller model of the final greenhouse so the test will not be too extensive concerning the mechanics and behaviour of materials under stress, compression, or environmental factors.	Test the practicality of the design. - results of the test will be used to modify the overall design/ idea of the greenhouse; that is, if the hexagonal shape does not work well we may change to a pentagonal shape. Test planned dimensions for structural integrity (adjust metrics for any errors). - We will adjust the proposed dimensions to compensate for any errors.	There's no test duration as we are just building the model and analysing it. Construction on the model will begin February 27th.

2	Evaluation of Greenhouse Frame	This test will consist of a larger model, likely as large as the final greenhouse design. We will be testing the structural integrity of the wooden greenhouse frame. Since the greenhouse will not have a floor, the greenhouse will have a loss of balance at the bottom and will likely be a very flexible structure (will move around easily in the wind or by any applied forces)	Test structural integrity. - Adjust dimensions to account for any unwanted movement in the frame. - Consider new materials based on their reaction to applied forces.	Will begin March 6th or whenever greenhouse construction begins. The test will begin once the frame is established.
3	Client Feedback	Get feedback from the client on our greenhouse design based on the changes (if any) that result from previous tests.	Show the client our design and inquire feedback on specific design choices. - We will consider the client's feedback and adjust our design based on what feedback we believe is necessary.	Testing will begin once the frame is at a desired structural integrity and once window material is in place.
4	Reaction to environmental factors	Attempt to test the greenhouse based on environmental factors similar to what will be faced at the location decided for us by	Exposure to rain, varying temperatures (hot or cold), reaction of material to blunt damage or scratches. - We will consider new materials	Testing will be done ideally a week before design day.

		the client.	based on the result of the tests.	

6 References

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