# Deliverable F - Prototype 1

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## Prototype Objective

The critical objective of our prototype is to communicate our design and allow us to create a proof of concept that we can use as a reference when constructing our main model. The prototype is a cheap and more comprehensive design to help us visualise the general proportions of the design while also saving us money in the process. The prototype will also give us an idea of the structural integrity of our design. The prototype is successful if it helps us conceptualize and model our chosen design.

# Prototype Images

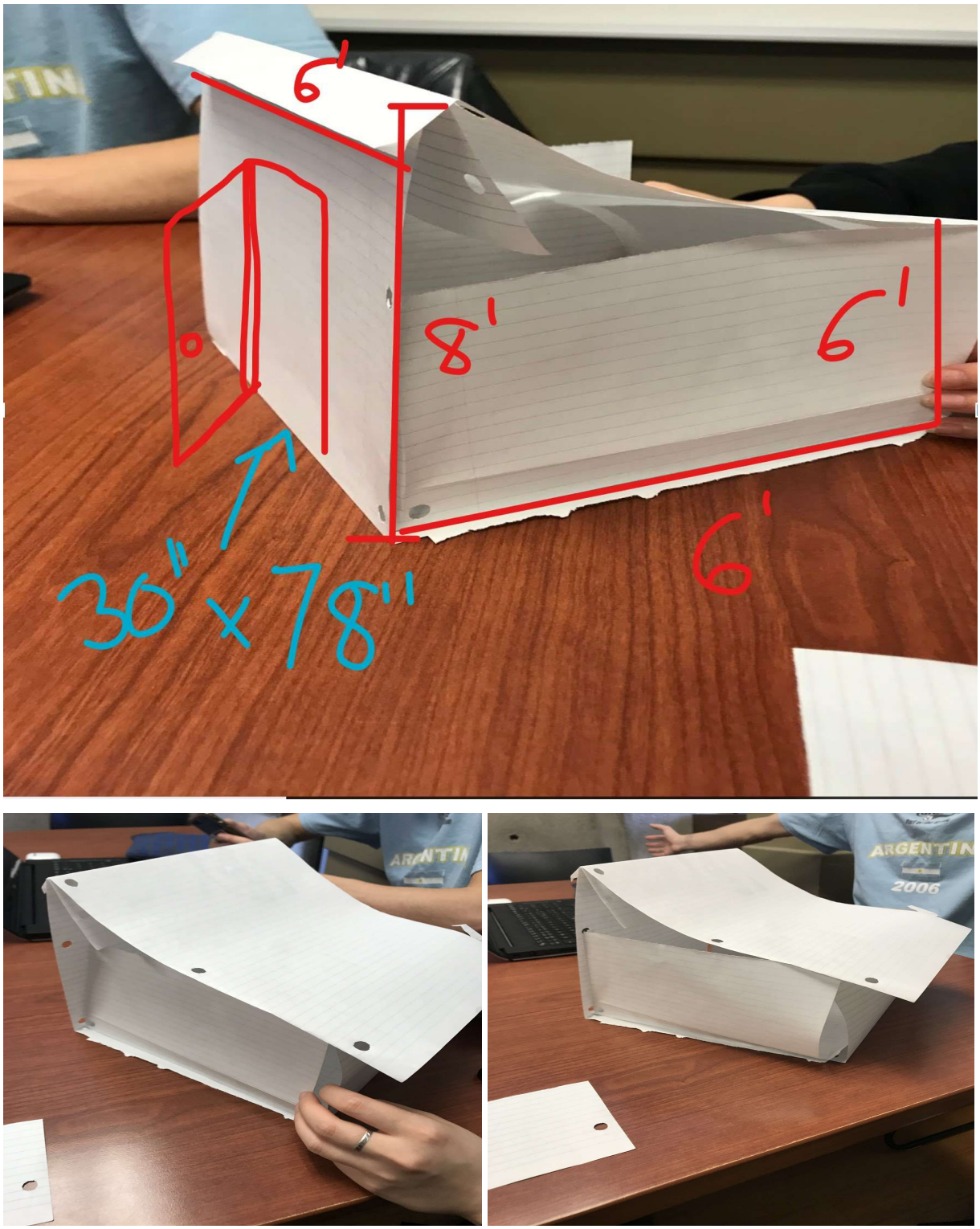


*Figure : Images of a paper-based model for the greenhouse shell*

## Prototyping Process

In order to build the physical model, lined paper was carefully selected for its availability and inexpensiveness. These qualities make it easy to reproduce. The lined paper was cut into proportional shapes and put together using staples to mimic the behaviour of screws holding the walls in place. The roof was simply placed on top, as this is the concept we'd like to apply during the construction of the greenhouse. Testing consisted of blowing on the roof, mirroring the effects of wind on the structure. The walls deformed considerably but stayed in place due to the staples, the roof effectively being swept away. This suggests that the roof will have to be bolted or screwed into the walls for structural integrity.

## Client Feedback

The client was quite pleased with our design during a meeting held on February 28th. However, there was a point of concern. She was mainly concerned with pests and infestation and wanted us to implement a system to help reduce infestation and ward off pests. We proposed an 18 inch wall at the base of the greenhouse constructed with OSB to minimize cost and defend against rodents clawing at the vinyl. In addition, culking at the joints will be used to fill gaps. These suggestions were well received and this feedback will help us improve our design and allow us to get a better understanding of the client's vision for the product. This feedback was obtained through images of our existing full-size greenhouse.

## Conclusion

After having received feedback from our client, our next prototype will be constructed using more rigid materials that will allow for thin support posts to let light shine into the greenhouse. In addition, the roof will not simply be resting on the structure, but fastened with some type of connection. We will implement the suggestions and concerns raised by our client. This prototype was done in such a way as to provide us with plenty of insights regarding aesthetics, structural integrity, dimensions, and functionality.