

Project Deliverable B: **Need Identification and Problem Statement**

GNG 1103 – Engineering Design

Faculty of Engineering – University of Ottawa

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Client statements and observations

On Wednesday September 19th 2018, we met with the client, Monique Manatch, to discuss the construction of a greenhouse. An aboriginal community of 50 people live at an abandoned airport strip in Le Domaine off of Barriere Lake. There are no nearby grocery stores, the closest ones are located in Maniwaki or Val d'Or. The location is secluded with no electricity or running water, but there is a freshwater stream nearby. The area has a flat stable ground with very fine sand. They have started small raised farm beds for tomatoes, radishes, lettuce, and peppers. However they have ran into problems with their farm due to small animals like mice and bugs eating the crops. Also these farm beds will not be usable during the winters resulting in no fresh source of grown food in the winter. Winters at the location can have temperatures drop -30 to -40 degrees celsius. Also, there are large amounts of snow drops at the location and strong winds over the trees.

The University of Ottawa has agreed to assist the community with a budget of \$250 for construction and \$100 for hydroponic systems.

Customer Needs

Taking the client's situation into consideration, the main objective is to supply fresh food year round to the community of 50 people. Listed below is the the main needs that must be supplied:

1. Supply food to the community of 50 people at the residence. Specifically the food should be hardy crops such as potatoes or green vegetables.
2. Provide a foodsource year round for the residences.
3. Materials to build solution must be transportable to build on site.
4. Provide a secure food source that is safe from small animals and the occasional thief.

Problem Statement

Based off a presentation session with our client, Monique Manatch is faced with a particular issue with having no access to essential groceries due to the remote location of her community. With no set infrastructure in the community, electricity and other essential power source is very limited. In addition, the seasonal winter climates makes the issue additionally challenging. As a solution, it is proposed to design and engineer a greenhouse structure in addition to a hydroponic system allowing the community to locally produce and harvest essential fauna. Due to the nature of a food storage structure provides issues such as accessibility, pests and structural endurance of the climate conditions.