Clients’ Needs

After meeting with the client it became apparent what limitations and restrictions will be set on our team when designing. The most glaring need of the greenhouse is for it to be completely self sufficient. This means that acquiring things such as plant fertilizer is not an option because of the seclusion of the town. A large obstacle in self sufficiency is having no electricity. To operate the hydroponics system, electricity is required to run pumps that continuously circulate water for oxygenation. We must use a self sufficient energy source such as solar panels. To run the pumps we must find a way to harvest enough water using the greenhouse itself while also storing the water within the building.

The towns location offers many obstacles on its own. Because of the harsh winters it is ideal that the system is used during the other three seasons, none the less it must be designed to be functional after the winter season. This calls for durable materials that can withstand extreme low temperatures, high winds, and large amounts of snow. Because of the rural environment we must consider animals that may attempt to damage or find sanction inside the greenhouse and build accordingly.

Building the greenhouse is challenging enough but we must also take into account transportation, ease of use, and maintenance of the building. We do not have the resources to transport a fully built greenhouse so we must move it in smaller sections. The sections must be quick and easy to assemble because of the lack of resources and mechanical experience of the designated users. Because of limited mechanical experience we must plan for minimal maintenance that can be done with very common tools. Considering all needs we must design and create a compact, durable, self sufficient greenhouse that is easy to use with minimal maintenance.