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1. Introduction

For this deliverable, our team members generated concept designs as defined by four separate subsystems: the non-workspace, the outdoor space, the offices, and the common area. Our team ensured to integrate a design aspect for each subsystem as well. This includes relation to culture and 3sustainability. It proved difficult to evaluate a stand-alone system, given that the final product was a building that encompasses all of the subsystems. Therefore, our team members opted to develop a building design that includes the aforementioned subsystems.

2. Initial Concepts

Initial concepts of the building can be found as sketches below.

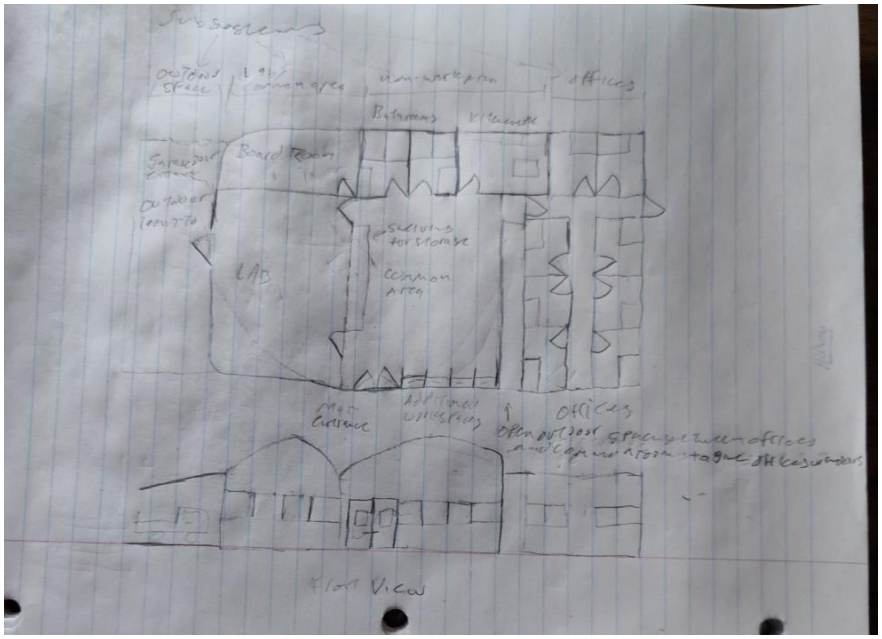

Figure 1. Initial concept by Jack

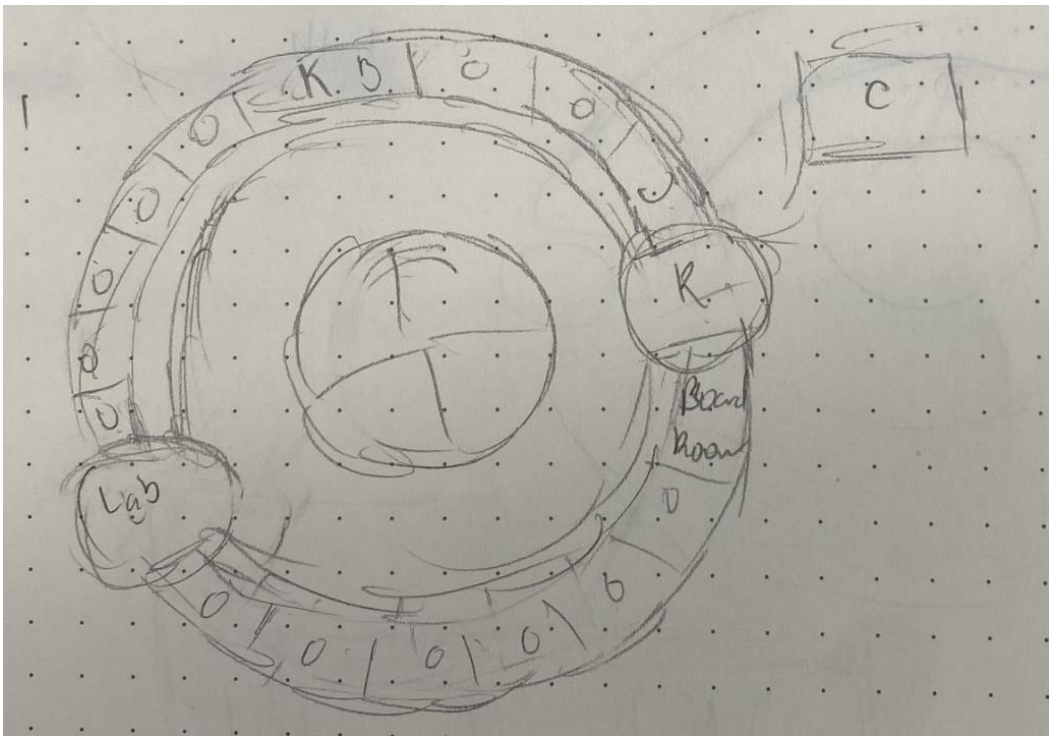

Figure 2. Initial concept by Cheri

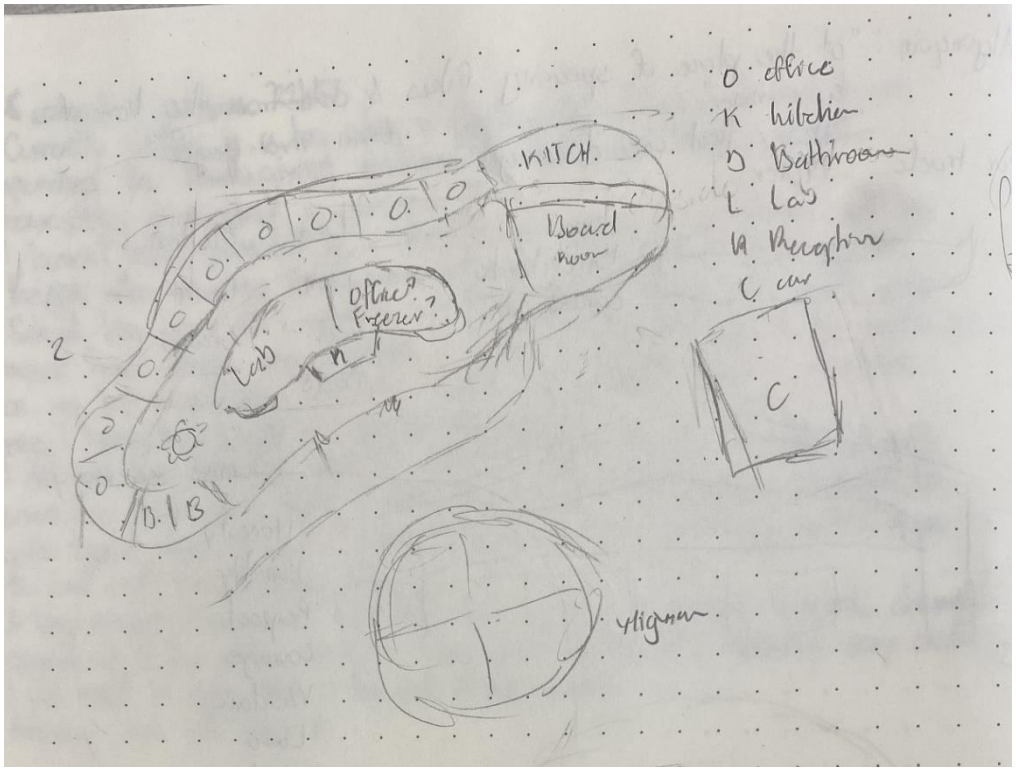

Figure 3. Initial concept by Cheri

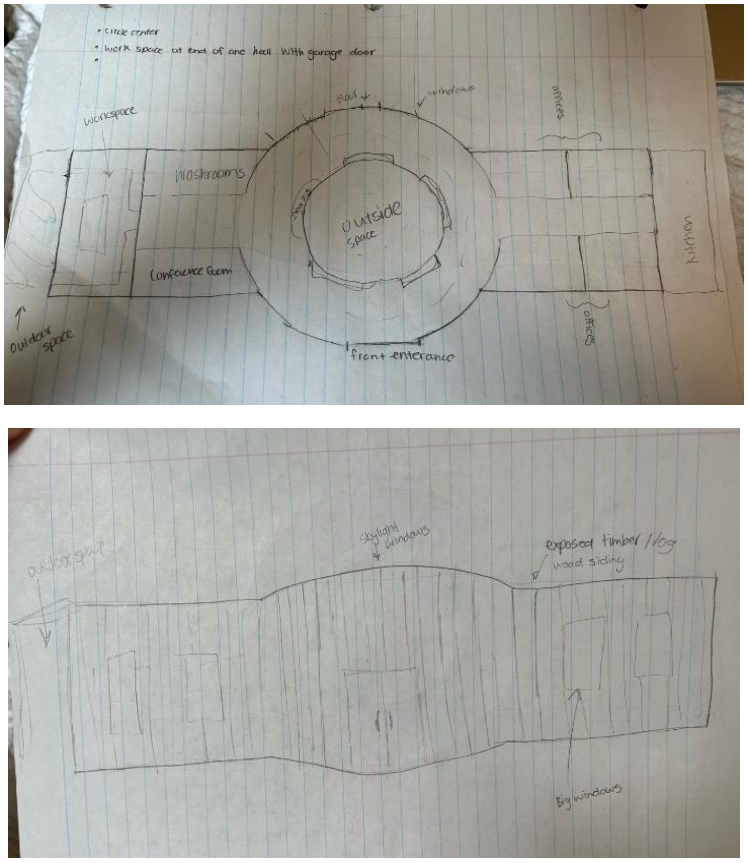

Figure 4. Initial concept by Brynn

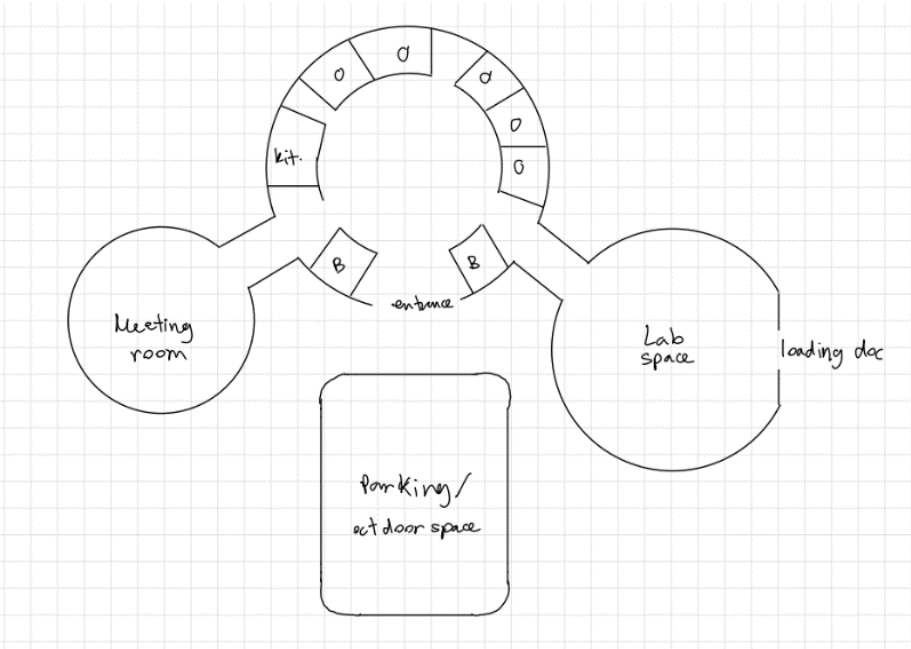

Figure 5. Initial concept by Gerika

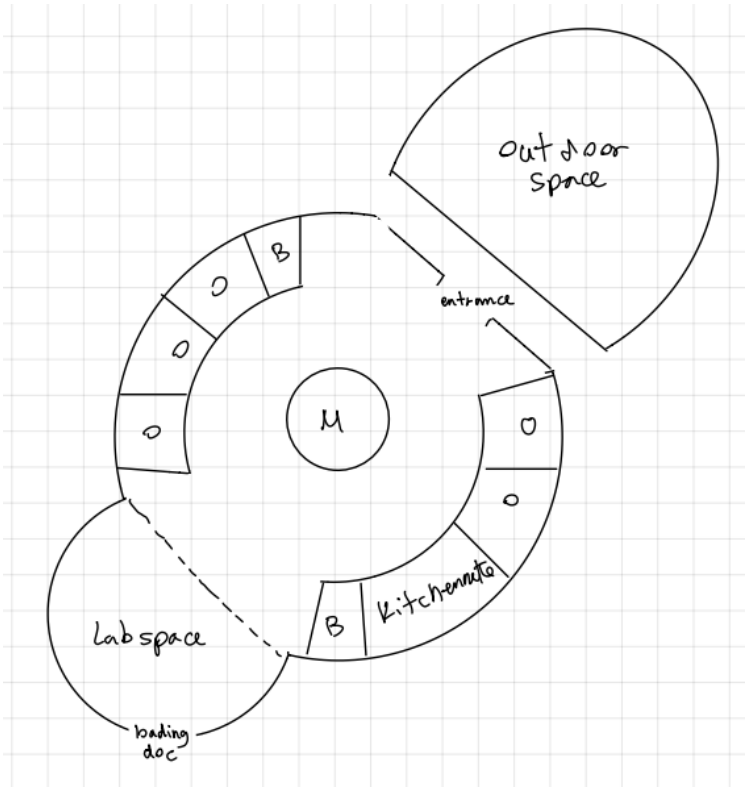

Figure 6. Initial concept by Gerika

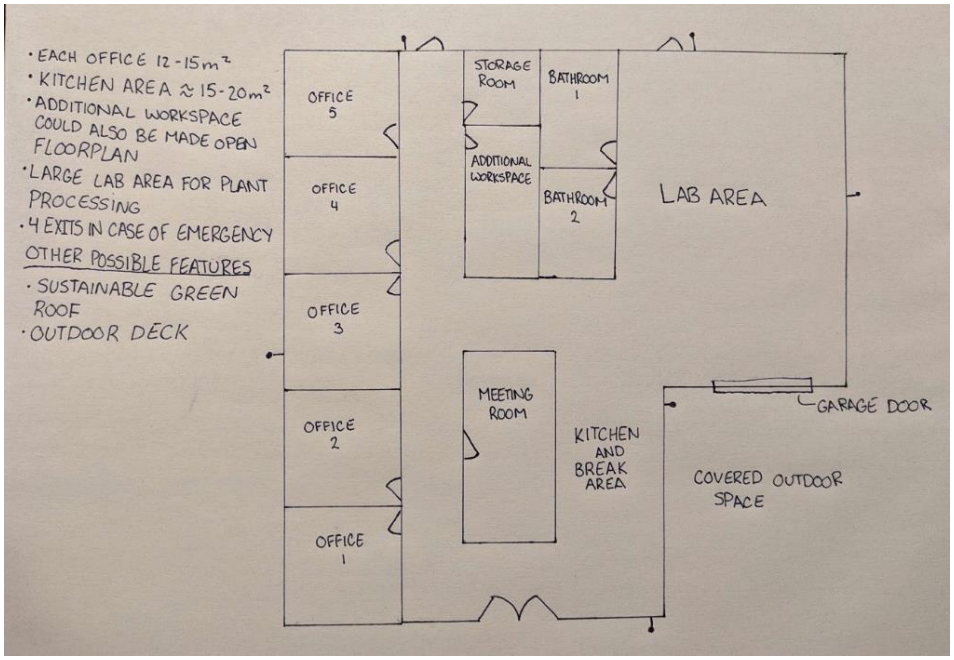

Figure 7. Initial concept by Ryan

3. Subsystems

3.1. Outdoor space

The outdoor space will be used as a parking space and a cultural/community gathering space. It should have a covered roof. Activities that may take place in this space include harvesting, cleaning fish, and tanning hide.

3.1.1. Jack

As depicted in figure 1, the outdoor space is located near the lab. This is to facilitate the entry of equipment, as equipment being brought to the building is most likely being used in the lab area

There will also be a small outdoor space between the offices and the common area to allow for windows in every office.

3.1.2. Cheri

In figure 2, the outdoor space makes up the majority of the lot. The entire building circles an outdoor space, with a wigwaam inspired structure in the very middle. Culturally, this represents the coming together of all people under the teachings of the Algonquin people. Functionally, the outdoor space allows for easy access from all sides of the building.

In figure 3, the outdoor space is located in front of the building. Similarly, this is to allow easy access to the building. A wigwaam inspired structure stands here, available to be used for outdoor events.

3.1.3. Brynn

The outdoor space is located within the building. Trees and greenery would be placed in this area to highlight nature within the building itself. It is located in the middle to bring attention to the space no matter the flow of direction. A skylight or opening in the roof in this area would be implemented to bring natural light in.

3.1.4. Gerika

In both figure 5 and 6, the outdoor space is located by the entrance of the building. This is to allow easy access to the building. An advantage to this design is its ability to be doubled as a parking space in addition to being a space to be used for events.

3.1.5. Ryan

The outdoor space depicted in figure 7 is integrated into the structure of the building itself. In addition to being a covered outdoor space, it also doubles as an event space. A garage door is also located in this area, allowing the space to become a loading for when equipment needs to be brought into the lab.

3.2. Workspace

The workspace is located in its own part of the building. It should include many small offices that have a desk and chair big enough to fit one other chair. The meeting room should be small with one table and a projector or tv to present on. There should also be tables outside the offices for additional workspaces.

3.2.1 Jack

Jack put the workspaces are located towards the edges of the building to create more dedicated and focused workspaces.

3.2.2 Cheri

Cheri put the offices around the edges of the building, with the meeting room towards the front.

3.2.3. Brynn

Brynn placed the meeting room and offices on separate sides of the building, each in their own area of the building.

3.2.4. Gerika

Gerika put the offices around the edges of the building, with the meeting room in a circular design, both on one side of the building in figure 5 and in the center in figure 6.

3.3.5. Ryan

Ryan put the offices in their own area on one side of the building, with the meeting room towards the center of the main area of the building.

3.3. Lab space

The building should include a lab space for plant processing which includes drying, refrigeration and sorting. This space needs to have a garage door for the trucks to access the lab as well as storage for the equipment.

3.3.1. Jack

Jack included the lab space on the far-left end of the building next to the outdoor space to create easy access between the garage door and the parking (outdoor space). This will make it easier to transfer equipment as well as plants to be processed. The lab space is placed on the edge of the building to keep it separate from the other rooms.

3.3.2. Cheri

Cheri created a circular shaped lab space to promote a collaborative working space within the main building. She included offices on each side of the lab to create access for all the employees. A second entrance that leads to the lab from the outside is also included for those needing solely to enter the lab.

3.3.3. Brynn

Brynn placed the lab space at one end of the building near the outdoor space. This would ensure easy access outside and would keep the lab separate from the working spaces. Her lab space is rectangular for a more functional floor plan.

3.3.4. Gerika

Gerika created a lab space separate from the main building facilitating the addition of features unique to this subsection (ventilation, extra insolation etc.). This separate section permits a better flow of the building by eliminating this obstacle from the other subsections. She included a loading dock on the side

of the lab space away from the parking lot in interest of keeping the trucks away from the outdoor space in the event that both a culture activity and loading of the lab are occurring at once.

3.3.5. Ryan

Ryan's lab space is a rectangle off to the side of the main rectangular building. This is to again keep it separate from the rest of the building while promoting easy access to the outdoor space that is also placed to the side of the building. His garage door leads to the parking space from the side to facilitate parking in front of the loading dock.

3.4. Non-workspace

The building should include a kitchenette and bathrooms that are easily accessible.

3.4.1. All

All team members located the kitchenette and bathrooms in the center of their design so they can be easily reached from anywhere in the building.

4. Selection matrix

	Jack	Cheri	Ryan	Brynn	Gerika
Outdoor Space (4)	3	2	3	2	1
Workspace (5)	1	3	1	3	3
Lab Space (5)	3	1	3	2	2
Non-Workspace (3)	3	3	3	3	3
Total	41	37	41	42	38

Figure 8. Selection matrix table for each design

Higher values taken are from each design and incorporated into the final concept for each subsystem.

5. Final conceptual design

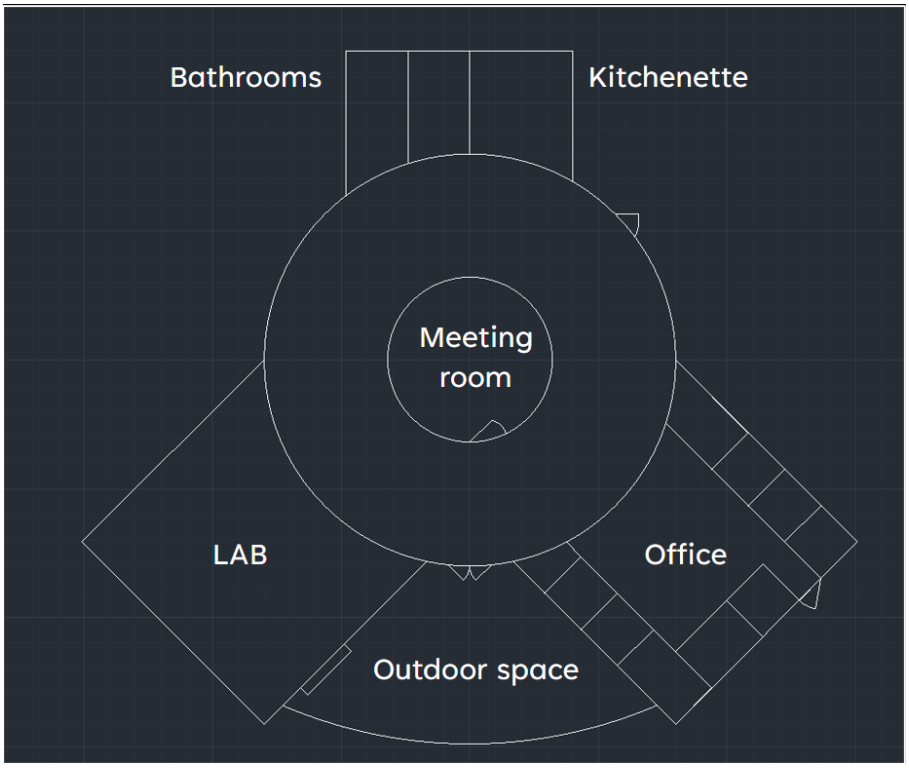

Figure 9. Final design concept

Following the previous designs created by each team member, our team decided on a final design by combining what we deemed the best components of each sketch.

To start, we incorporated the circular shape that was reoccurring in Cheri, Gerika, and Brynn's designs. This is due to its relevance in Algonquin culture. Circles are believed to be a part of nature and life, and is also the shape of the medicine wheel. Additionally, we liked Brynn's design choice to add rectangular sections, as it added angularity and functionality than if we created a completely circular building. For similar reasons, we designed the boardroom to be circular. However, we also took into account the fact that a circular workspace promotes group discussions and gatherings, which is ideal for a board meeting. We also placed it in the center of the building to give easy access to all the workers from each section.

We also wanted to keep our subsections in separate areas as shown in each rectangular "arm". This will create a bit more organization and allow us to incorporate the necessary safety features in each section.

Another important change was to place 2 of the "arms" on an angle with the intent to have the outdoor space/parking lot between the 2 sections. This is to allow easy access to the lab from the parking lot for potential trucks that need to use the garage door located on the side of the lab "arm". To add, having this space next to the building will make the creation of the roof-like cover easier as we can attach it to the building. Placing the parking lot in front of the building is also convenient in being able to enter the building easily, whether it be for work or gathering purposes.