Deliverable F: Prototype I and Customer Feedback

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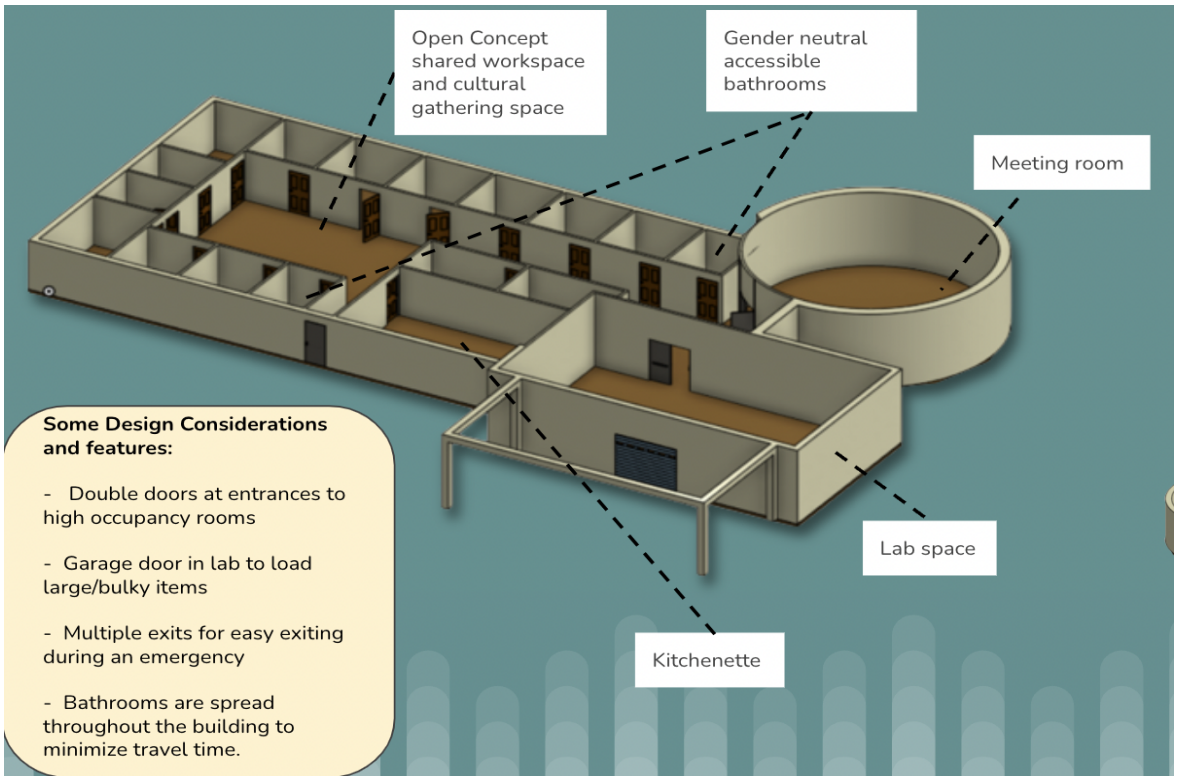
[Wrike Snapshot]

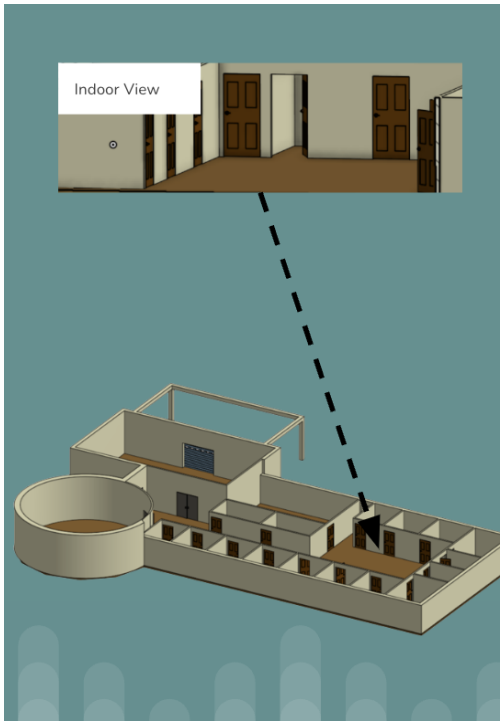
Intro:

This deliverable outlines customer feedback as well as the details of prototype 1. The deliverable discusses the feedback from the client and how it was used within this prototype compared to our last floor plan. Then, discuss the "why", "what" and "when" of prototyping and how our prototype uses those principals. This deliverable does a simple analysis of the critical components and subsystems of the prototype. We also do an analysis of the results of the test plan of our last deliverable of the analytical prototype. After that we go through comments and feedback from a potential client. Next we updated our target specifications, detailed design and BOM after tests are completed and analyzed. Then finally, we discuss our test plan for our next prototype.

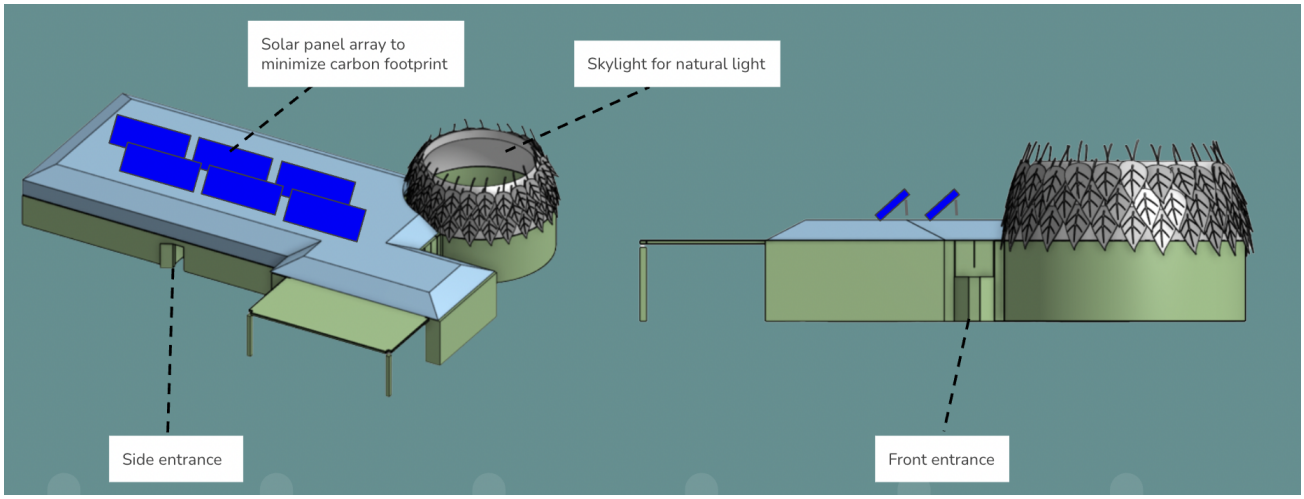
Analytical prototypes

Floor plan/walls:





Roof:



1. **Outline client feedback. How will the feedback be used in future designs?**

Room	Client Feedback Received	Changes to be made
Offices	-The client mentioned that our offices were too large and that they only needed to have one desk with no need for extra seating.	- We made our offices much smaller with only room for one desk. (100 sq/ft) - We now have 14 individual

	-The client also said that they wanted more than 6 offices as they want room for growth in the future.	offices.
Bathrooms	-The client said that they didn't have a need for bathrooms with stalls and would prefer two individual bathrooms to save space.	-We changed our design from two bathrooms with 3 stalls in each to two single handicap bathrooms.
Lab	-The client mentioned that they would like more freezer space -They also said that they wanted to add lab benches that are not the plant processing station dn do not have computers on them.	-We are adding an extra freezer to the lab space. -We've added two lage lab benches on one side of the room so that the plant processing station is still able to move.
Storage Space	-The client said that they would like more storage space for small equipment.	-We will add a small storage closet within the lab.
Solar Panels	-The client stated that they thought solar panels and renewable energy were a great idea!	-We will be adding solar panels to our design

2. **Develop a prototype to achieve the objectives your team has set out (i.e. you need to answer the "why", "what" and "when" of prototyping).**

Why: to be capable of having something to present for the 3rd client meeting, and to test our design to see if it can meet the specifications we set out to achieve (accessibility, cultural values, functional space)

What: this prototype is a comprehensive analytical model of the building. It includes doors, a roof, and solar panels.

When: This prototype is finished now, it took about a week. The next prototype will be completed in time for deliverable G (sunday, three days from now.)

3. **A simple analysis of critical components or systems should also be included, based on your current knowledge of engineering science or other knowledge.**

Critical components included in this prototype are: an office space; an open room for collaboration; a kitchenette; a meeting room; a lab; 2 bathrooms; a lean-to; and the roof. Based on feedback from the first client meeting, more offices have been added to the office space to accommodate the maximum number of workers at once, and the offices are surrounding an open space with tables and chairs for collaborative work. A kitchenette with a dining table is included for lunch breaks and storing food. The meeting room is circular with a circular table to represent Algonquin culture and values. The lab includes space for computers and a garage door that opens to the lean-to. It also has space for dried plant storage and freezing products. Two handicap bathrooms are spread apart in the building so they are close to all rooms. A lean-to is placed outside the lab with a garage door for parking and

loading/unloading trucks. The roof is two heights, the office area being lower and the lab area being higher. The roof above the meeting room is a dome-like structure with leaf shaped parts on it to represent nature, and there is a skylight in the middle to provide natural light to the meeting room.

4. **Prototyping test plan, analysis and your results, including pictures of the prototype.**

We will not be doing the tests for the physical prototype, we will only be doing the tests that are applicable to the analytical prototype as the physical prototype will be the second prototype we make.

Test	**Test Objective**	**Description of Prototype used and of Basic Test Method**	**Results**
1	Ensure our building represents Algonquin culture	Using our analytical prototype, we will ask a series of 3 people to confirm whether or not they believe our building represents Algonquin culture	With our test, we have concluded, though we have included some aspects of the Algonquin culture, only inserting leaves on the roof of the meeting room is not enough representation. For our next prototype, we must incorporate more architecture for this representation.
2	Ensure a wheelchair can fit/access all parts of our design	Once again, using the analytical prototype and a scaled wheelchair model, we will double-check that everything is accessible to a wheelchair in onshape.	With our simulated wheelchair, we have concluded our doors were not big enough to fit the widest wheelchair width possible. Thus, for our next prototype we will increase the doorway widths by two inches.
3	Determine whether a moose hide can hang in the lean-to	With our analytical prototype, we can have a scaled model of a moose hyde, or at least a rectangle the size of a moose hyde to ensure it fits under the lean-to.	We were able to confirm, our lean-to will be able to fit a moose hide by inserting a rectangle as big as the hide.
4	Test how easily a person can move around	In proportion to our analytical prototype, we will make a virtual person and move it around the building to ensure the building layout is accessible.	After inserting our virtual person in our building, it is clear that an average human can easily move around the building.

5. **Gather feedback and comments on ideas from potential clients that you have sought out on your own.**

After consulting with a potential client, I have acquired feedback on our design for the guardian program office building. Some of this feedback includes adding a separate server room for the organization. This includes filing cabinets, printers, a network server, and anything our clients need to optimize the organization of their office. Adding a reception area was also mentioned. When discussing the inclusion of solar panels and the corresponding importance of sustainability in the design of this building, we talked about orienting the windows to absorb the most sunlight and heat proper insulation to reduce heating during the winter and be as energy-efficient as possible. Still on the topic of sustainability,

the idea of adding a bike rack to encourage this green means of transportation. We also need to take into consideration parking for staff.

6. **If applicable, update your target specifications, detailed design and BOM after tests are completed and analyzed.**

Our target specifications have not changed. We still want to include many target specifications, we want to ensure that we are including cultural aspects within the building. We want the design of the physical building to have cultural significance and not just have cultural decorations within the building. We are still including a large circular meeting room and incorporating this cultural significance within this room. The detailed design has changed. We have included more offices, as well as a community meeting area. The community meeting area will be used as a space where employees can have casual meetings or just have lunch. The tests have not caused us to change much as the tests were all successful. The BOM has also not changed.

7. **Outline a prototyping test plan for prototype 2 to prepare to build the second prototype in the next deliverable. Sara**

For our 2nd Prototype, we are creating an analytical prototype using onshape. This will be an enhancement of our 1st analytical prototype.

This is our test plan for the analytical prototype:

Test	Test Objective	Description 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	Accessibility Test	Use a digital model of a wheelchair to see if it would be able to move through our floor plan easily.	We will move the wheelchair model throughout our design on Autocad and see if its dimensions fit through our doors and floor plan.	Start date: 10/11/2023 Estimated duration: 15 mins
2	Visual design Test (Does our design fit the Algonquin values)	Asking people in the Algonquin community whether or not they think our building design represents their culture.	We will ask people using Reddit and then take note of their feedback.	Start date: 9/11/2023 Estimated duration: 2 days.
3	Test if our lab meets safety requirements.	Go through the Canadian guidelines for lab safety measurements and see if our lab meets the guidelines.	We will test our buildings against the guidelines and see what our lab is missing safety-wise.	Start date: 10/11/2023 Estimated Duration: 2 hrs.
4	Test to ensure all doors have space to open and don't interfere.	Test all the doors on AutoCAD to make sure that all the doors have free space to open and close with no interference and	After checking, all the doors we will take note of what doors may not be able to open properly.	Start Date: 10/11/2023 Estimated Duration: 15 mins

		without bumping into people.		

Conclusion:

This deliverable showcased our first 3D prototype. With a light on our improvements and modifications from feedback received. This deliverable includes information about prototype 1 and user input. The deliverable talks about the client's input and how this prototype differs from our previous floor plan in light of it. Next, talk about the "why," "what," and "when" of prototyping as well as how our prototype applies those ideas. This deliverable does a basic analysis of the prototype's essential parts and subsystems. We also analyze the outcomes of the test plan for the analytical prototype, which is our most recent deliverable. Next, we review the remarks and evaluations provided by a prospective customer. Once the testing were finished and analyzed, we updated our goal specs, detailed design, and BOM. Lastly, we talk about our test strategy for the upcoming prototype. This deliverable showcases our progress and improvements.