Project Deliverable G: **Prototype II and Customer Feedback**

Group 10

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Abstract

As in past deliverables, our group is continuing to work towards the client's desires as much as possible: a building that will highlight the First Nations culture and provide a working and community space to grow as a program. Group 10 members are all responsible for contributing to their select parts of the report and completing the work with the client's needs in mind, in order to continue on the path of project development with empathy to the client and their requests. This report will present a summary of all the components contributed to this deliverable, notably the work leading towards the first prototype of the Guardian building.

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1. Introduction

In this deliverable the second prototype is presented using the feedback from peers and hopefully get feedback from the client soon. We have a set layout for our building that has matched with the information the client has presented us over these few weeks. Lastly, we present information on different tests and their objectives.

2. Feedback

Between the third client meeting and now, we have not received any feedback from the client (yet). If or once we do, we will be sure to make the appropriate changes to our design and ensure the best possible results for Design Day.

3. Prototype II

Based on feedback from teammates, peers and previous client meetings, the second prototype was created. This prototype was done on AutoCad to provide a not only detailed, but is a scaled down, 3D representation of the building. Certain design choices were changed to accommodate the functionality and aesthetic of the building as a whole. There were windows added and removed based on where the rooms were in reference to one another, as well as a design of a roof. On the roof, a skylight was added to provide extra natural light in addition to the windows in most rooms. This prototype gave a very realistic look into the design and how everything has come together. To improve, we will use the client's feedback from the third meeting as well as more feedback from our peers. Our final prototype is planned to include furnishing as well as a model for the outdoor activity area.

4. Component analysis

Selected preliminary concepts:

Functional requirements

- Building entrance is accessible
- Large, open, outdoor space
- Multifunctional lab workspace

Non-functional requirements

- Natural light and air
- Community-friendly indoors
- Logical building design

Constraints

- Building square footage
- Building Budget

Component or subsystems selected:

- Outdoor space (Large, open, outdoor space)
- Gable roof for snowfall (Logical building design)
- Open area in the centre (Natural light and air/Community-friendly indoors)
- Room relocations (Building square footage/Building Budget)
- Double wide wheelchair accessible doors (Accessibility)

Not selected:

- Original floor plan **(**Building square footage /Building Budget)

- Indoor activity area with closed roof (Natural light and air/Logical building design)

5. Prototyping Test Plan Prototype II

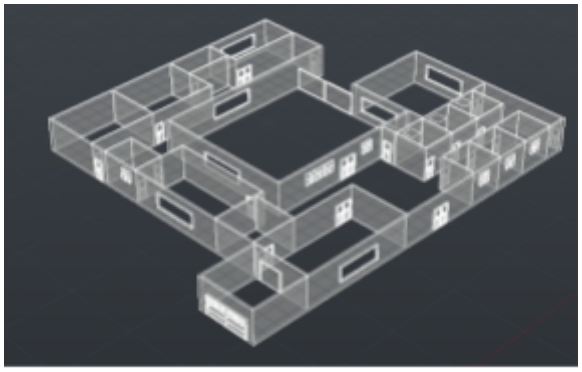

Figure 1: Prototype II AutoCAD 3D Model, no roof

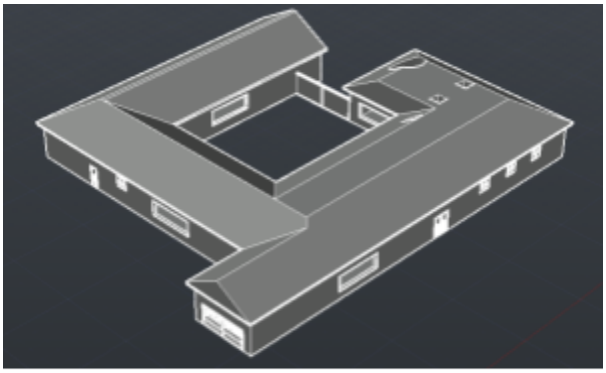

Figure 2: Prototype II AutoCAD 3D Model, with roof

Test ID	Results
1. Sanity & Safety Check	No current safety hazards have been brought to our attention
2 Peer Feedback	During peer feedback testing, a question was raised about potential water collection in the courtyard due to the angle of the roof that leans towards the courtyard. As a solution, we will need to decide if it will be better to leave the courtyard as a grassy center, or if it will be paved, we will consider a means of water collection as to not risk damage to the building exterior around the perimeter of the

	courtyard. A good option is to have eavestroughs on the edge of the roof and rain barrels for water collection. The water collected could also be repurposed in any way of benefit.
3 Client feedback	No current client feedback updates
4 Cost Estimate	There have been no changes to the cost estimate (still under budget).

6. Prototyping Test Plan Prototype II

Test ID	Test Objective	Description of Prototype used and of Basic Test Method (What)	Description of Results to be Recorded and how these results will be used (How)	Estimated Test duration and planned start date (When)
1. Sanity Check	Identify any current / final concerns involving accessibility(hallway size, door operation, table heights, etc)	Using our 3D printed model we will identify any remaining issues with respect to the 3 most important aspects of this project through a visual inspection and a mock walkthrough through the lens of a user.	Taking down qualitative notes on any improvements that need to be made for the final showing at design day. Modifications can be made using hand tools.	This test will be performed after the model is created and will last no more than one day for identification and another day (or more) to address the issues.

2 Outside feedback from members of the community	Seek out the input of non engineering students for our design so that they can bring in a fresh eyes opinion	Using images or parts of our 3D print we will seek out feedback from non engineers to provide a fresh look on our design from a beginners perspective	Record their qualitative observations and discuss them in a team meeting to decide how to proceed with their feedback in mind.	This test will start once the prototype is finished.
3 Client feedback	Receive any final feedback from the client on the floor plan layout and exterior design	Take note of the final feedback given by the client at our 3rd meeting	Discuss these results and determine the best way to implement the clients feedback	This test plan can begin once we receive the clients final feedback.
4. Overall final cost optimisation	Use the 3D model & 3D print to observe any unused spaces or wasted space to reduce the build cost.	Analyze our 3D model for any wasted space in the design	Update bill of materials with new square footage estimates and/or furniture pieces.	This test can be performed on the final iteration of the prototype..

7. Conclusion and Suggested Changes

It has been decided for the next and final prototype, Prototype III, to be a 3D printed model of our building with a removable roof, so that the inside of the building can be viewed. The intention for Design Day is to present the 3D printed model alongside the CAD model, and a video walk through of the building, so that each viewer can get full visualisation of the building and all its components. We are currently content with our design and layout, and we will make necessary changes if we receive any more feedback from clients or peers on how we can improve

our design even further. We will continue to put great thought into our design and see progress throughout the final designs of the project.