Prototype II and Customer Feedback

Ahmed Alainachi, Sophie Kim, Andrea Roman, Angela Wahba, Amy Woods

November 12th, 2023

Abstract

The present document includes the group's 15-second prototype design. This has multiple rooms of what the final 3d design will look like. It includes most of the first floor to give a perspective of what the final result will eventually look like.

Table of contents

1. Introduction

Deliverable G is the last step prior to the final design. The main focus of this deliverable is to get the majority of the prototype done while building off of past feedback received from peers and during client meetings. The focus of this second prototype was to complete the first floor. This consists of the group work room, done previously in the past deliverable, the boardroom, kitchen and breakroom, bathrooms, garage, and storage room. Due to the more structurally challenging room that is the gallery, it will be completed alongside the second floor with the final design.

While creating these entire first-floor prototypes, our group took more into consideration the look of the design based on feedback throughout the weeks and of our first prototype. This prototype is based more on refining the prior prototype as we approach the final design. Although, there is still much room for specific design changes as we move forward.

2. Feedback outline

2.1. From the client on the given prototype design

As of November 12th 2023 we are still waiting to receive feedback from the client on our most recent prototype.

2.2. Potential client feedback

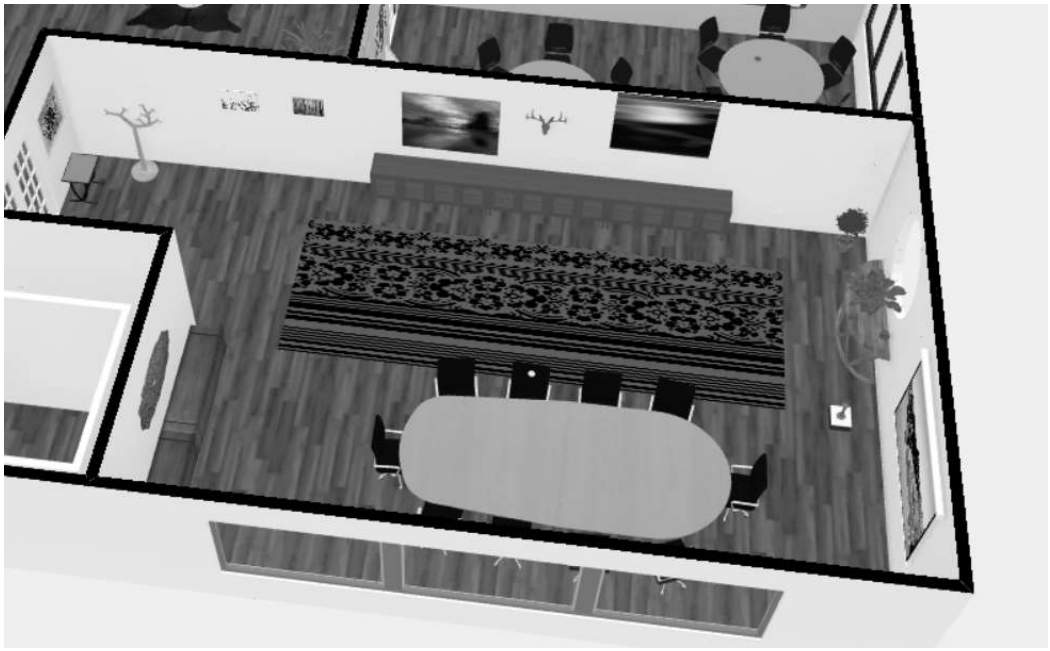
Speaking to some upper class engineering students as potential clients, the feedback given was minimal. The clients recommended ensuring the boardroom has integrated technology for some modernized meetings. The portable lab bench may be too big to move around the rooms of the building; the potential client cautioned us to ensure there is enough space around the bench for easy movement and access to equipment. The client also cautioned that the plant's drying rack was placed in an area with optimal conditions for plant drying such as a moderate temperature of around 20-35 degrees Celsius, and a low humidity environment, as a high humidity environment may increase the risk of mold and bacterial growth; air circulation can also combat this. The client mentioned that the timber used for the building should be treated for durability and fire resistance, especially for a lab area. The client

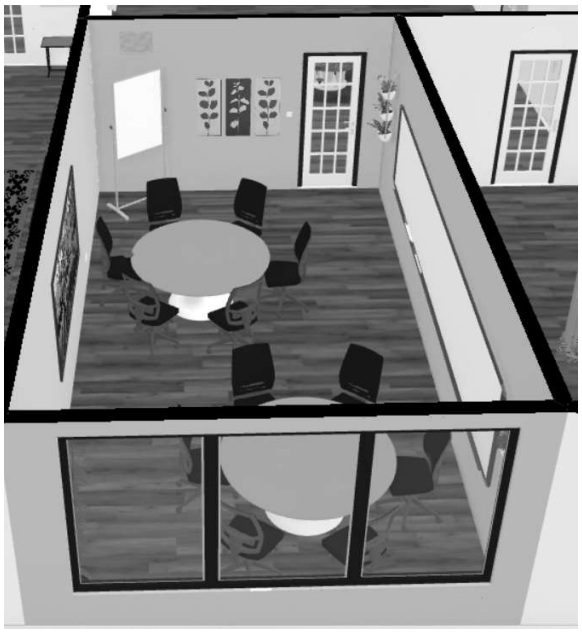
suggested that the garage/lab should not have much timber and instead use non-flammable materials such as bricks or masonry.

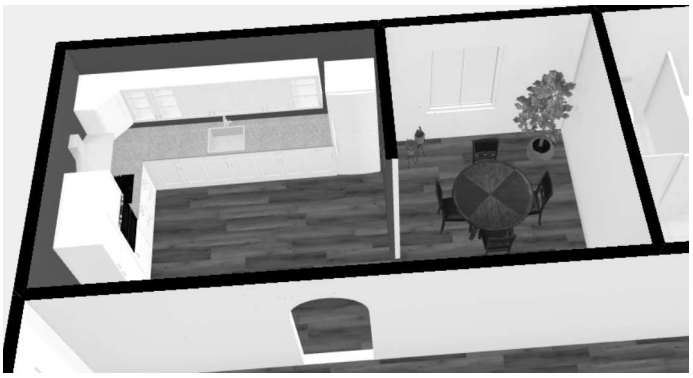
Given this potential client feedback, we have taken it to note and will apply these aspects once given feedback from our actual client. We will ensure there is ventilation and airflow throughout the building, and ensure the hallways are big enough to be accessible to both those with disabilities as well as the lab bench. The building is to be built from timber to stray away from the industrial look, however, it may be important to keep the garage/lab away from flammable materials. Overall, the feedback was very minimal as this product or prototype is very specific and it is very difficult to find a potential client that would be interested in a building like this.

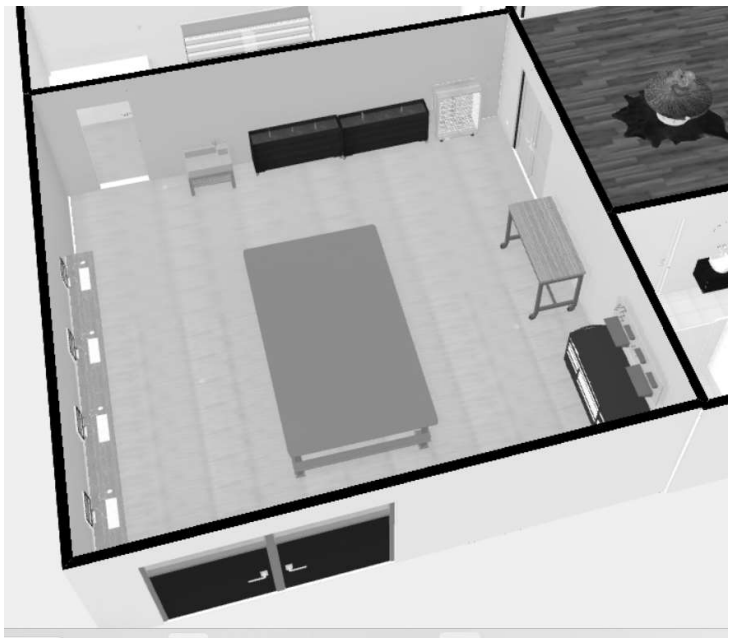
3. Prototype II

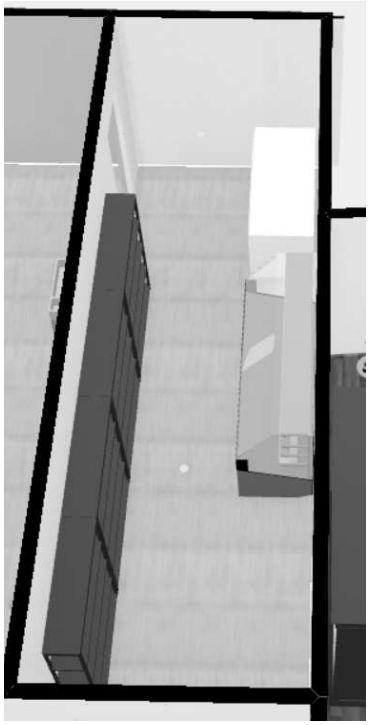
For the second prototype, the majority of the first floor was completed, with the exception of the gallery (top right, rounded room) and the main hallway. Other rooms such as the kitchen (bottom left) and garage (top left) may be missing certain decor and other aspects to make the room more full and complete. With the decoration aspect missing a few things, the function of each room, with the exception of the gallery, is complete with the main necessary items for each room's function. The images below, in order, are full-floor view, the boardroom, group work room, kitchen/break room, bathrooms, garage, and storage room.





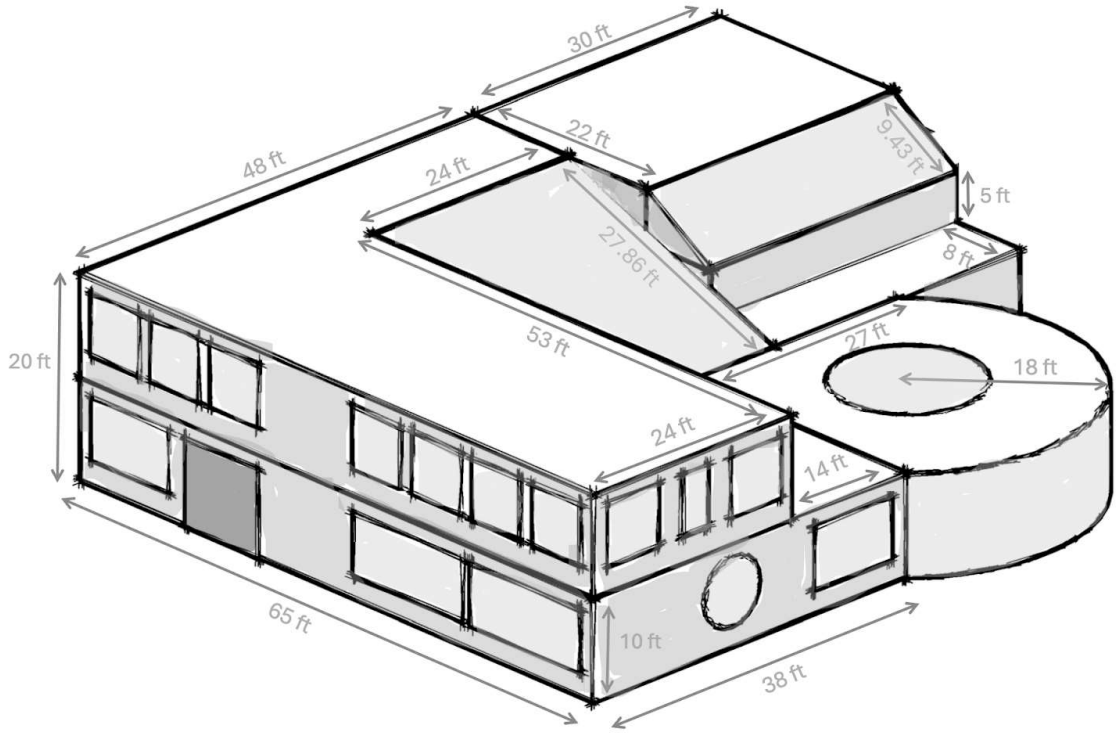




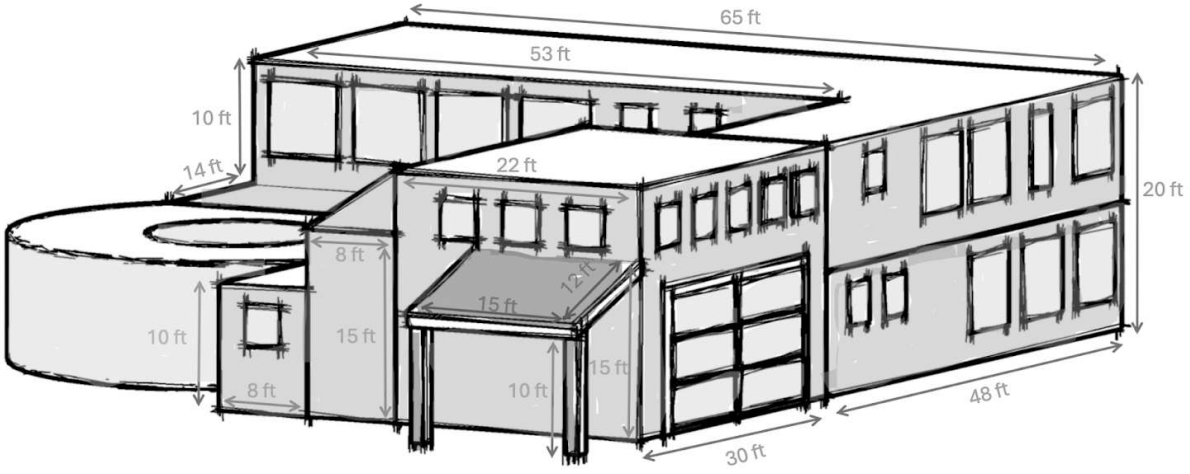


4. Analytical, numerical, or experimental model

Dimension from the front & right side:

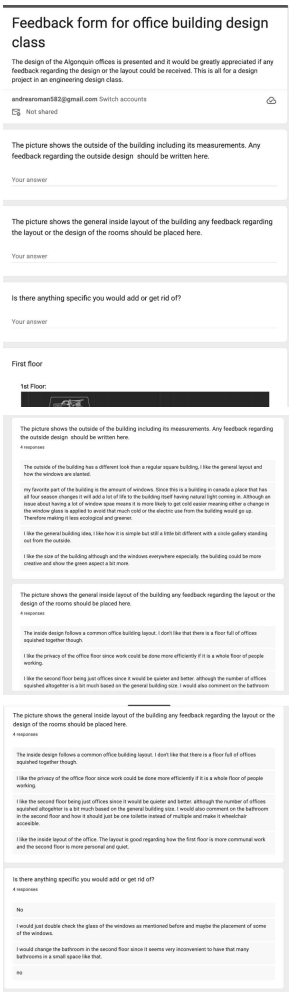


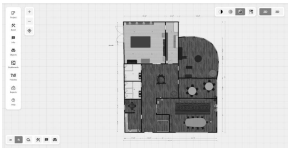
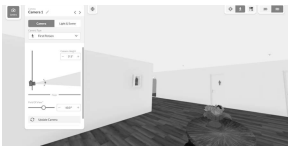
Dimensions from the back:



5. Prototyping test plan

5.1. Analysis and result (with pictures)

Prototype	Analysis	Results	Images
Feedback obtained from peers:	It is important to get feedback from many people because they all have different suggestions on things we might not have thought of before.	We have asked a couple of people and they mentioned we should add light switches and light outlets around all the rooms. A short feedback survey was also done regarding the design so far and we saw that the windows are the most liked part of the building. As well as how we should change the second-floor restroom making better use of the space with just one restroom rather than multiple especially so the wheelchair can fit comfortably.	

Feedback from our selected client:	Feedback from original sketches and cad design has been the only feedback received. Second feedback from the current design has not been received yet.	The dimensions of the sketch are good and the space is acceptable for a wheelchair (which is a good addition)	
Safety and sanity check:	We need to do a test to see if everything is up to the provincial standards. For safety, there needs to be 2 escape exits in case of a fire. There also needs to be a fire extinguisher as well as sprinklers.	After doing the safety and sanity test, we made sure that every room met their standards. There is a fire extinguisher in the hallway as well as fire sprinklers in every room. We also have a door and window in every room(2 emergency exits)	
Size and space	We need to make sure there is enough room for everything we need to have in each room. To do this, we need to find the average size of the objects in every room, and put the object, with the right dimensions, in the room.	In the lab, we have desks set up with computers. The average size of an office desk is 48” - 72”. In the model we have, they are 60”, so we know it fits. There is also enough room for a large movable table in the center of the garage. A large deer is about 71 “, so our table should have more than	  

		enough room. The table we have set up is 96’ x 168’ x 48”, which should be plenty of room. The average size boardroom table, for 10 people, is 29.52" X 94.48" X 47.21", and the size we have is 180” x 78” x 30”. After taking the size of everything, we can assure every room size is big enough for everything needed.	

5.2. Outline of Prototyping Test Plan for Prototype II

This outline of the prototyping test plan will be for prototype two, which, in this case, is the majority of the first floor. There haven't been changes added to the design nevertheless, most of this prototyping test plan stays the same. The major change was in the approximate cost therefore that will be included in this prototyping test plan.

Test ID	Test Objective	Description of Prototype Used and Basic Test Method	Description of Results to be Recorded and how these results will be used	Estimated Test duration and planned start date (Stopping criteria)
1	Feedback obtained from peers:	Present 3D prototype to our peers and provide a survey.	Explore survey results and make adequate decisions to adapt the	This selected feedback survey can be performed throughout the Creation of our

			prototype as best as possible.	prototypes. It should be stopped whenever the final prototype is being created since only a few changes should be made during the finalizing stages.
2	Feedback from our selected client:	Perform any changes to the prototype and present the prototype to our client.	Analyze and understand the Feedback in order to implement and make changes accordingly.	Like in the peer feedback, client feedback Should stop at least one week before the final design is finished.
3	Cost estimate	Ensure that the cost estimate is up-to-date and accurate, as well as optimize the design when necessary to stay within budget.	Maintain an updated cost estimate for the project.	This test can be checked after every deliverable is done to ensure the cost is within margin.
4	Size and space	By using a 3D floorplan software, we can see all the measurements included; therefore, double-check that the building is wheelchair appropriate	If the measurements are correct, no change will be made, although if the case is that the width of any selected area is not big enough, adjustments to	During the next week, the final measurements for the entire Building and everything inside should be finalized. The creation of prototype two should be the stopping point.

		and spacious enough to fit the number of people comfortably stated. We can compare the measurements to a standard wheelchair and an average height and width man.	the entire floor plan will be made.	Since prototype two is the second most crucial room, measurements should be settled.

6. Task plan update and updated BOM

https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=Vnk1Izs9uA1BOHKJnxzKeaDIGh3qG0xT%7CIE2DSNZVHA2DELSTGIYA

A	B	C	D
Prototype #	**Prototype Software/Hardware**	**Description**	**Cost**
1	FloorPlanner.com	An online site where you can upload your floorplans or start from scratch to create your own building design and create a 3D model of your design	$14.99
2	Sims 4	An game that can be used on mobile phones and computers to design and create model homes and floorplans	0$
3	5D Planner	An app or website that can convert floorplans directly to a model, as well as create a floorplan and model with furniture. This model can be viewed in 2D, 3D, VR (with android devices) , and AR.	$20/month (in USD)

7. Conclusion:

Based on the selected software from the last deliverable the creation of almost all of floor one was completed. This was with the addition of some minor differences in order to achieve the desired look of the building. The bill of materials was also adapted based on the software we are using for the creation of our final prototype. No other major changes happened, and we are still waiting for the feedback from our clients' last meeting.