

# 1 Design Presentation Material

In preparation for Design Day, we prepared a 3-minute speech, a trifold board detailing our final design, our subsystems and our development progress, and a VR-simulation for judges and attendees alike to try.

## 1.1 Preface:

This document will cover the key elements of our presentation tomorrow morning (the 30<sup>th</sup> of November).

## 1.2 Presentation Speech:

Our speech was designed to be symbiotic with the VR experience that one of the judges will ideally be trying during our explanation. The outline for the speech is as follows, and will be performed by two of our members (Adam and Liam) who have volunteered to speak during this event.

[Before the start of the presentation, Benjamin will help a judge begin the simulation and equip the headset]

- Discuss the basics of the problem: “We at SmartBuild Studios were tasked with designing a practical, efficient design for a building that can survive harsh winter conditions, while remaining useable year-round for research and processing purposes.”
  - [At this point, the user should be in the simulation]
- On the monitor, you’ll be able to see [judge]’s progress through our VR simulation of our building design. We felt it that the only way to truly understand the experience a building provides was to offer a scale model – and since that remains impractical, we opted for the next best thing.
  - [The judge in the simulation should be guided to certain locations to help accentuate the speech, but the trifold map can be used in its stead if necessary]
- Basic user requirements: “We needed to design a building that could accommodate around 5 permanent workers, and up to 10 additional impermanent workers at any given time. Our office space allocation system allows for 10 offices, 5 of which can be doubled-up for space, given they are all expansive and spacious, with a comfortable 12x15ft span.

- The building needed covered parking, and a loading dock for trucks to deposit supplies. We opted to include a direct-access passageway from the loading dock to the storage room, separated only by an antechamber to minimize loss of heat in the winter, and to avoid freezing out everyone working in the lab whenever the exterior door is opened.
- Two bathrooms with two stalls each are provided, though there is space for more as needed. A common space is present in the center, with room for eating, lounging or general recreation.
- A ventilated kitchen space is provided near the back of the building, and fire exits are present at various points of the building for a high standard of safety, as indicated on the annotated floor plan [on trifold map].
- Of course, the centerpieces of the building include the meeting room and the plant processing laboratory. The meeting room features glass walls, which can be made frosted for privacy, of course. The glass was a feature we included to help the space feel open-plan without compromising on compactness and spatial efficiency.
- Our building indeed offers a low-cost solution to the design problem, while tackling all critical criteria and upholding high standards. The roof is designed to accommodate extreme snowfall, with a high safety margin.
- An organic, wrap-around parking system would be used, with locally-sourced woodchip flooring to simultaneously accommodate outdoor events as well as allowing for a high amount of parking space when needed for community events.

[The rest of the time would be dedicated to answering questions or going on tangents, as both speakers prefer improvising anyways].

### 1.3 Trifold Board:

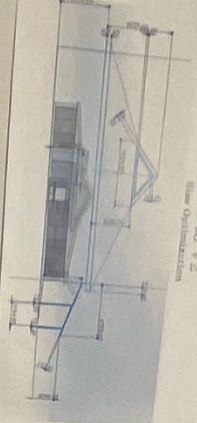
Our trifold board has 3 parts: On the left, we show our development progress, from V1 of our building to the downscaled V2, and the VR development progress. On the middle section, we display our final building renders as well as the annotated floorplans, along with a small description of our project fundamentals. On the right section, we included our principal subsystems (Meeting room, plant processing lab, office spaces). Accompanying the trifold map (shown below) will be mathematical calculations of the roof's load bearing capacity in the winter.

Development

VERSION 1  
Initial Design



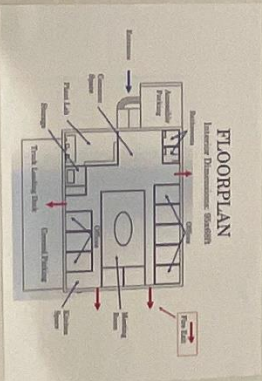
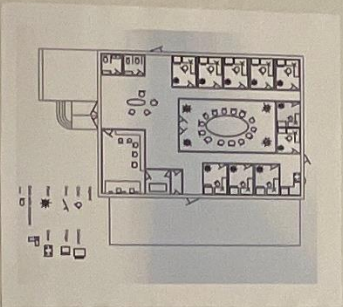
V1 to V2  
Site Optimization



VR DEVELOPMENT  
Try it yourself!



**SmartBuild Studios**  
An efficient single-story design that maximizes value for cost, with no compromise on safety or required features. Try our VR simulation of the building and experience it for yourself!

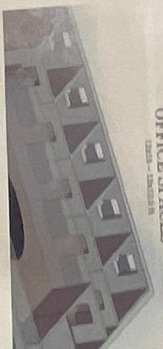


Subsystems

MEETING ROOM  
24'x40' - 12'x12'



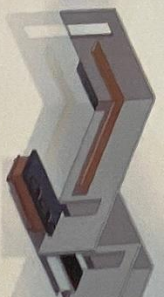
OFFICE SPACES  
1248' - 1248'x12'



PLANT PROCESSING LAB  
24'x24' - Storage Room

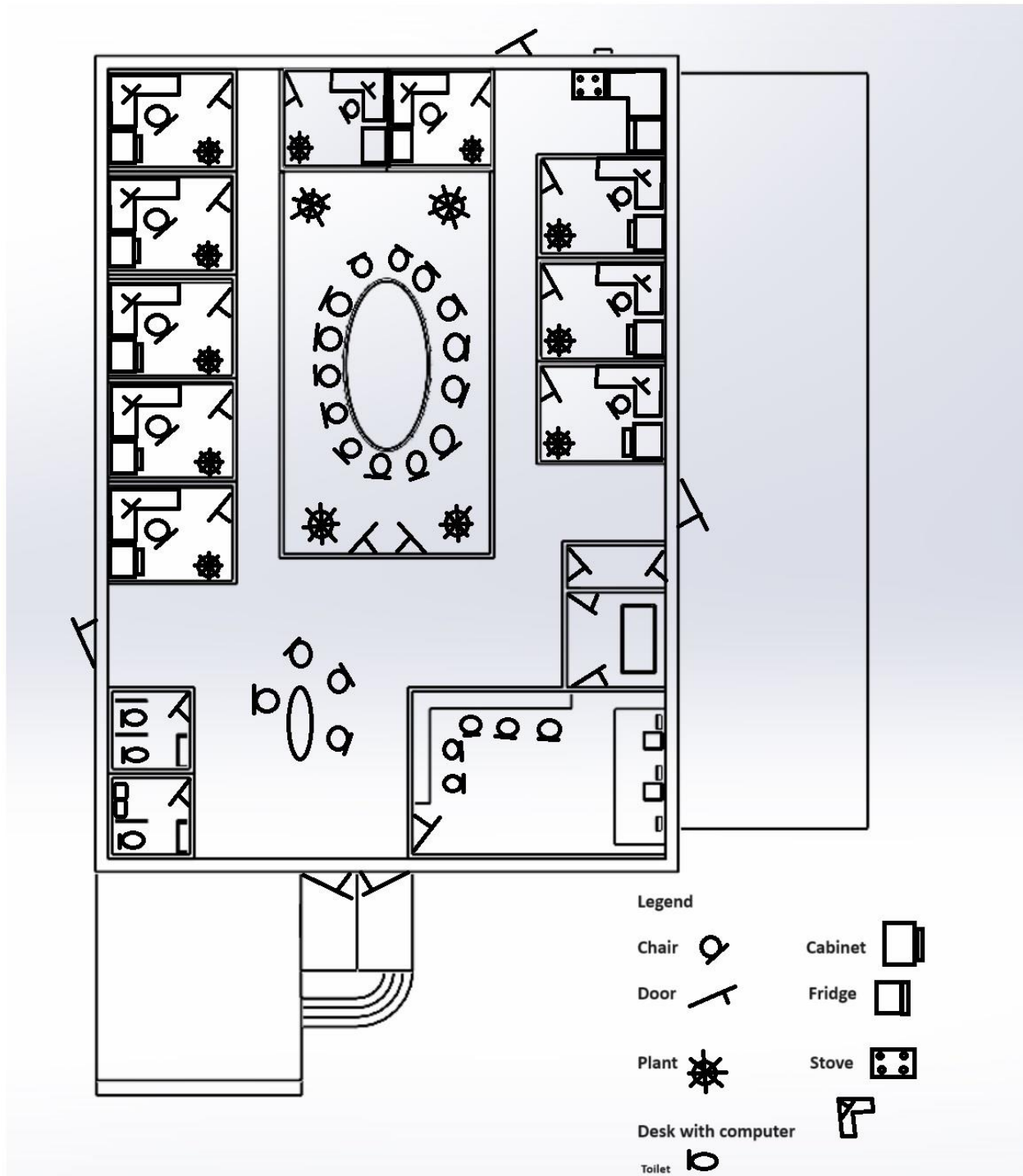


Loading Dock Area  
+ Access Chamber

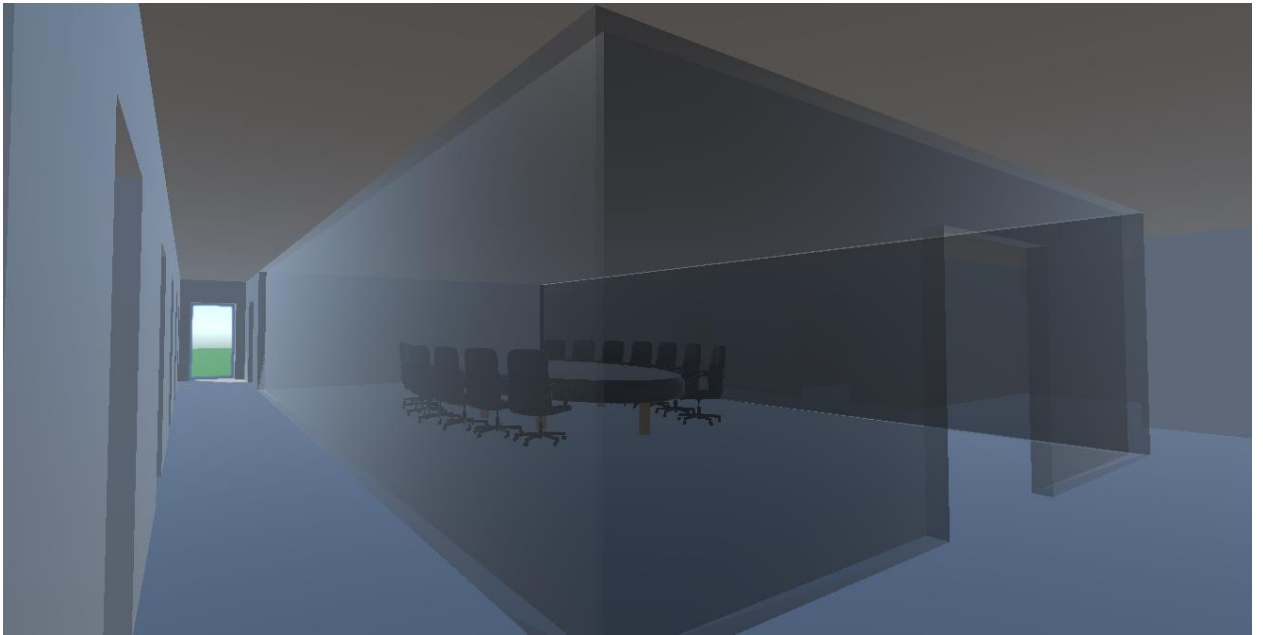


## 1.4 VR Simulation:

Our VR simulation has come to life with colors/textures from Blender and office supplies assets from the Unity asset store. Our floorplan was designed by Liam as such, and implemented in Unity by Benjamin:



Rooms in our Unity simulation look as such:



Our plan is to interweave the VR simulation into our speech, such that one judge can use the simulation while we discuss the building's development. This is reflected in the speech outlined above.

1.5 [Wrike Link:](#)

<https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=0nkDsg2jT3Zx7Amk1CVcD4dzBDPMkLPE%7CIE2DSNZVHA2DELSTGIYA>