

# **Deliverable D**

GNG1103A Group 11

October 20<sup>th</sup>, 2023



## **Abstract**

*This document covers Group 11's work throughout the last two weeks, developing a suitable set of three subsystems according to the client's requirements. We first examine the initially defined subsystems, then the first ideas brought forwards by all members of the team. We then analyse these ideas and extract the very best and worst features, to create the ideal version of each solution at the end.*

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## 1 Introduction

Throughout this document, we will examine Group 11's work on three critical subsystems of the overall global design, those being the Computer & Plant Processing Lab, the Parking Lot & Loading Dock, and the Meeting Room & Office Spaces. The goal of this document is to offer a comprehensive view of the decision-making processes behind the conclusions of the last weeks of work.

### 1.1 Document Outline

We will first cover the three subsystem definitions, then the various solutions for these subsystems with their respective pros & cons, and finally we will examine the optimal solutions found.

## 2 Initial Subsystem Definitions

This section covers the definitions we established for our three chosen subsystems.

### Computer & Plant Processing Laboratory:

- A workspace containing a movable lab table, space for several computer workstations, storage for herbs & access to a freezer or dedicated storage room.

### Parking Lot & Loading Dock:

- An outdoor area with space for 10-30 cars to park, and a loading dock for two half-ton trucks to easily unload supplies into the building.

### Office Spaces & Meeting Room:

- Designs for a central conference room for 5-15 people, and/or office spaces for a dedicated work environment.

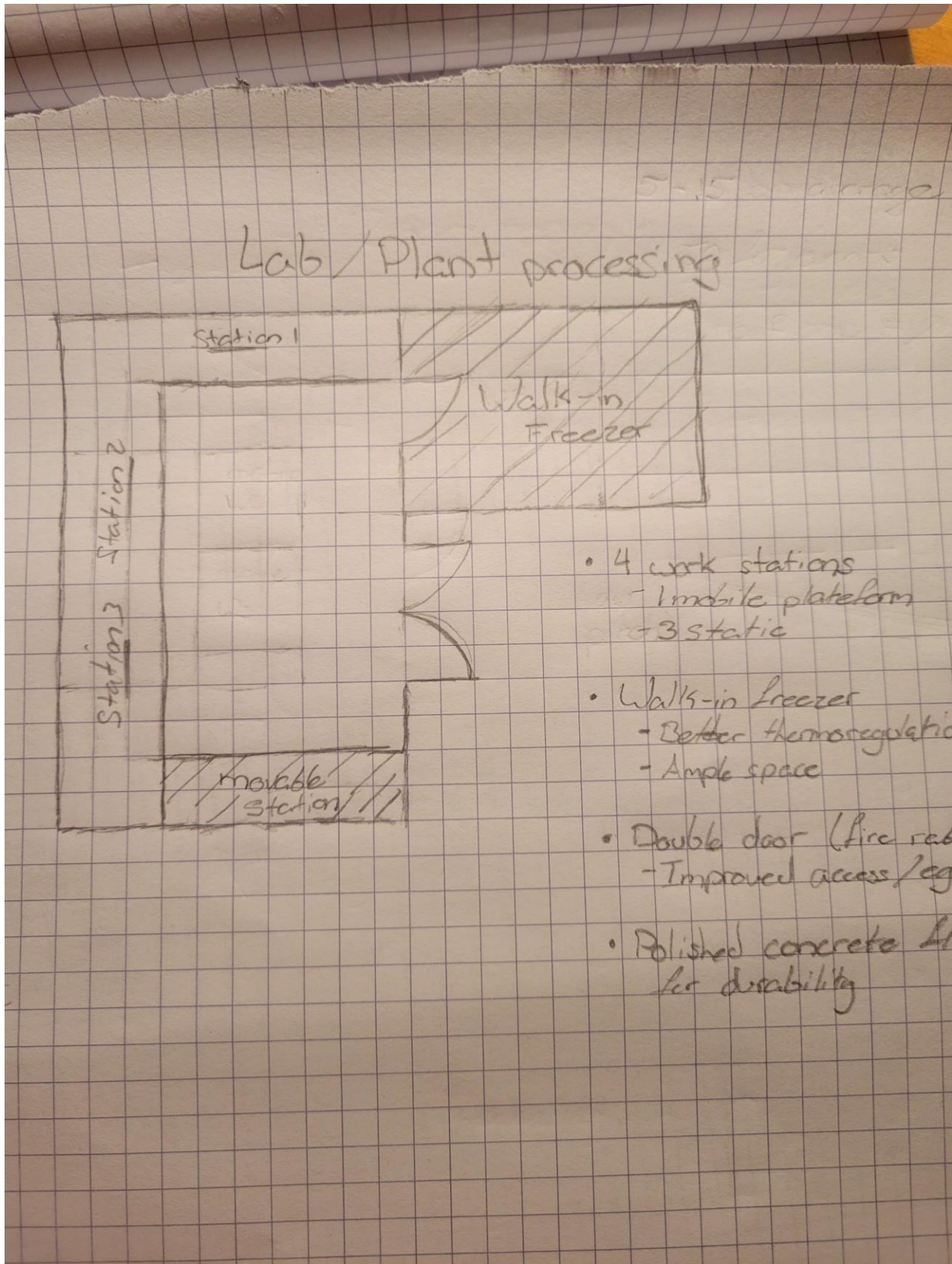
In the next section, we see the 17 solutions provided by our 6 members (3 each, one exception), as well as their group-assessed Pros and Cons.

## 3 Individual Solutions

Each subsection below will feature a list of solutions attached to the creator's name, alongside images and sketches of the work, accompanied by a comprehensive review of the positive and negative features of the design solution.

### 3.1 Computer & Plant Processing Laboratory

#### Tyler:



Pros: Freezer Space!

Movable Station tucked away nicely

Polished Concrete Floor is durable

Encircling Stations - easy to move around

Cons: Not much space, esp for moving table around

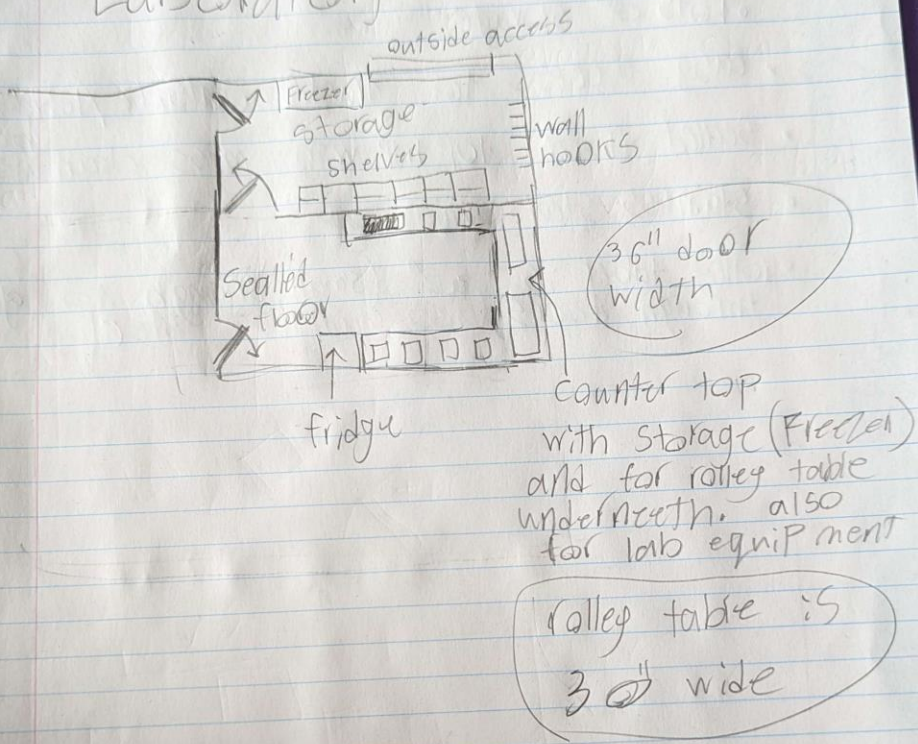
Hard to transport corpses into freezer

Freezer room cannot have a door connecting to outside

Isolated freezer room

**Benjamin:**

# Laboratory Plant processing



Hilroy



- lots of storage
- easy access to trucks outside/loading bay
- sealed floor to help with mess clean up.
- stainless steel counter top.
- alley table is 36" (small enough to go through doors) (also stainless steel)

Pros: Outside access, easy access to supplies

Encircling design

Lots of storage, well designed storage room

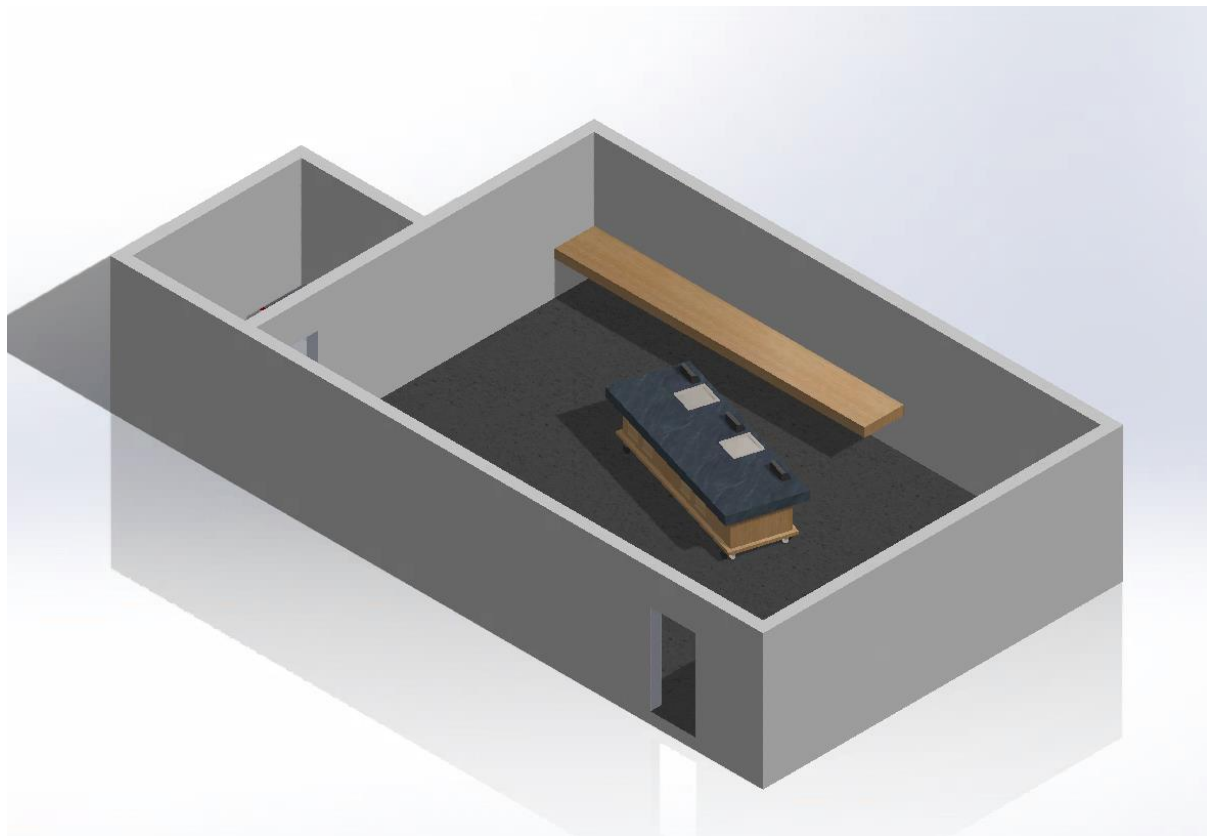
Standing table design (safer for lab)

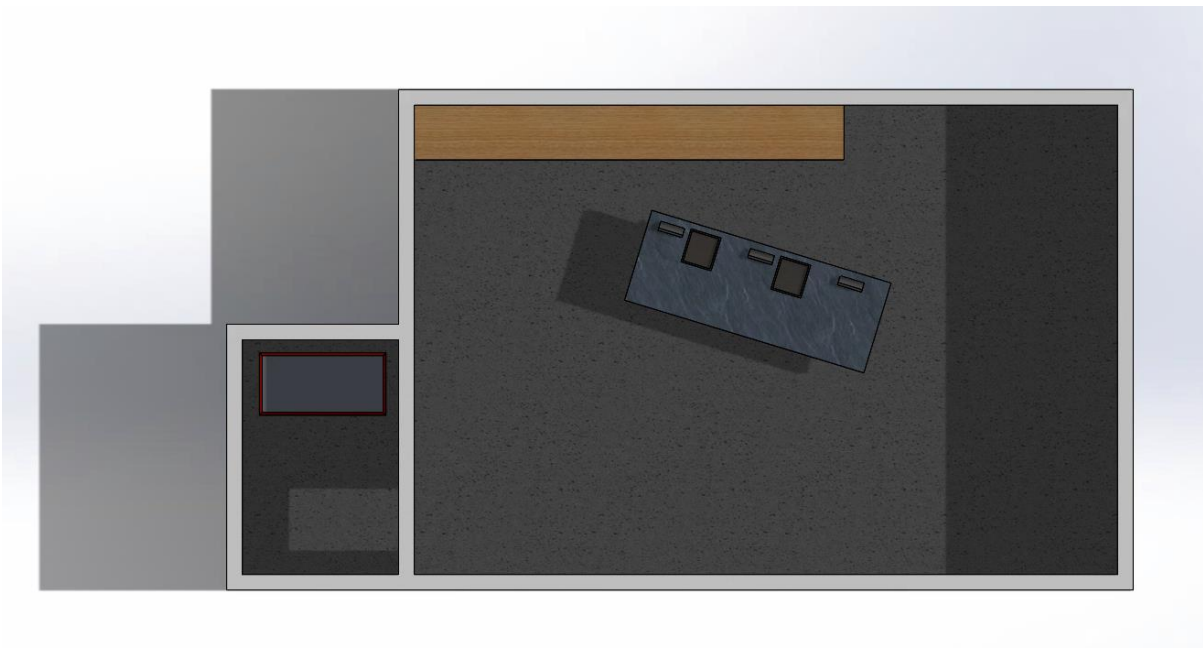
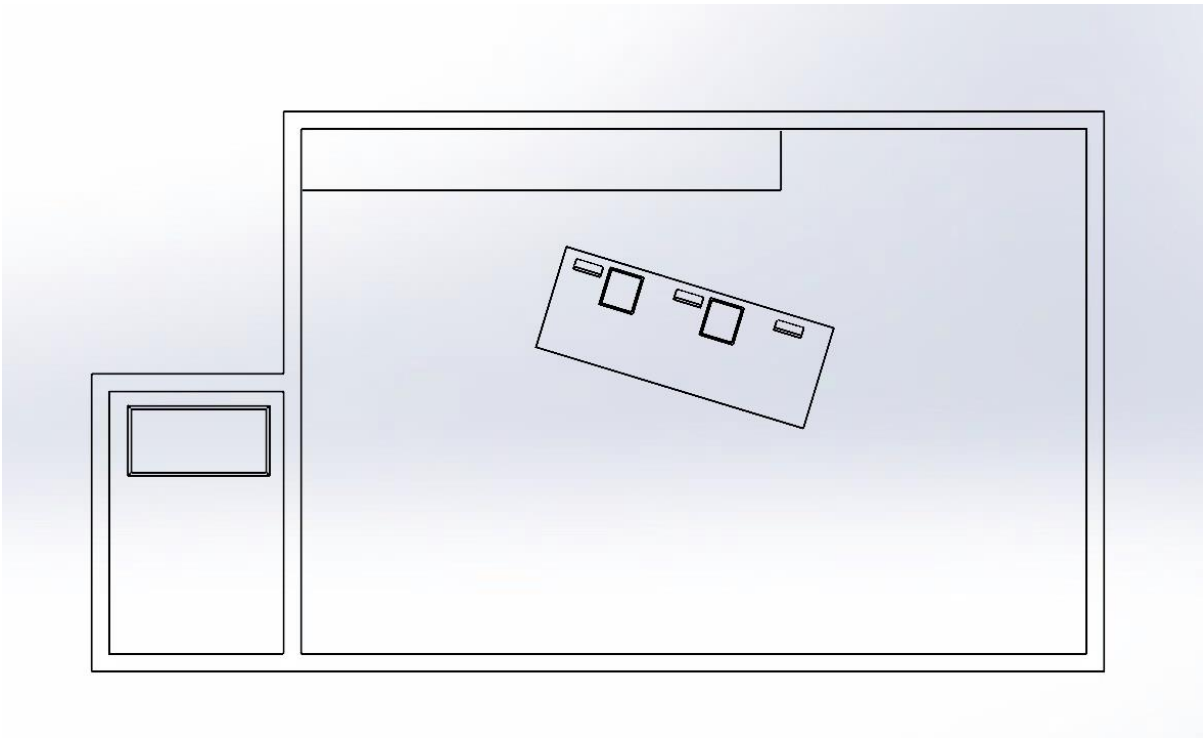
Sealed floor, easy cleanup

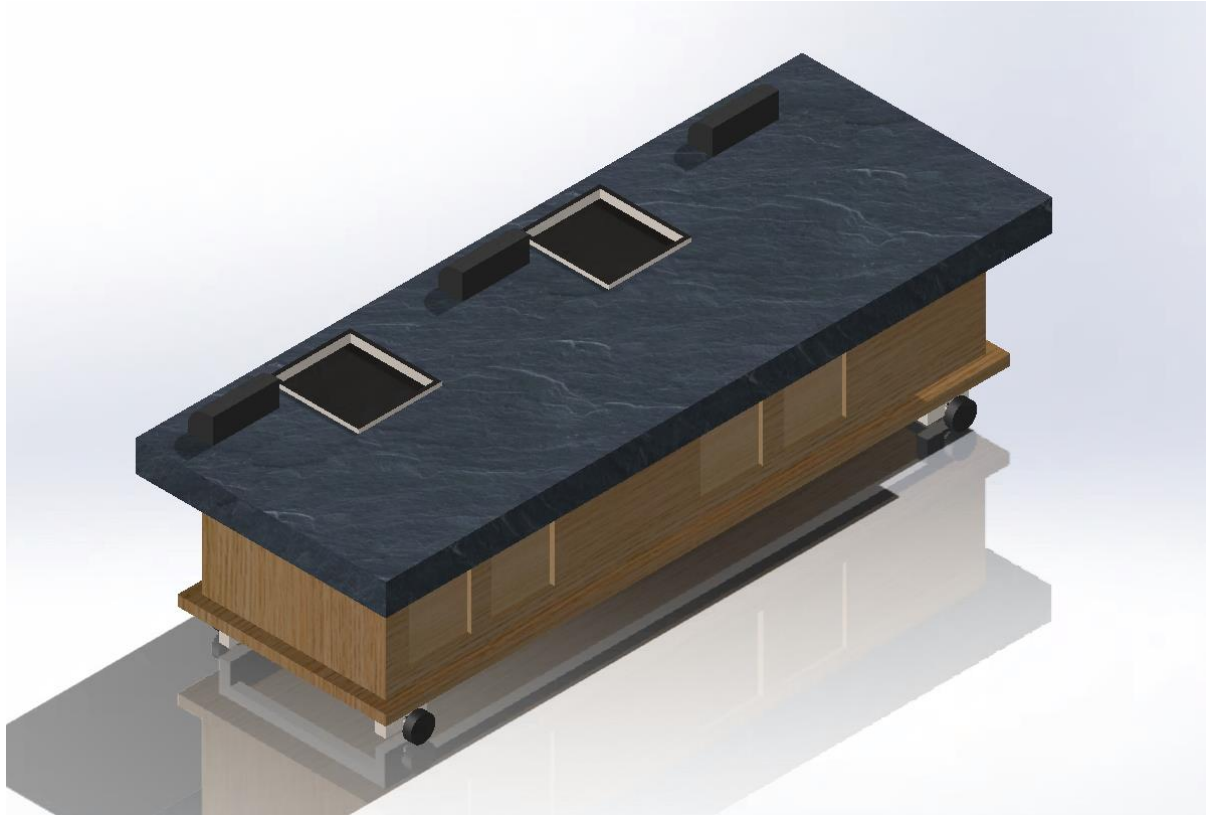
Cons:

Partitioned Design: less lab space?

**Adam:**







- The lab table was a large focus of this subsystem as the client has put a lot of emphasis on it
  - Needs power, and access to water (sinks, outlets)
  - Needs wheels and the ability to lock in place
  - Needs storage drawers
- The room must be able to accommodate moving the lab table around, and should have space to set it aside when necessary
- The lab must have a storage room equipped with a freezer
  - Freezer must be big enough to store a deer carcass
- The room has desk space for computer work, if combined with the 'computer lab'
  - Notice that there is enough room next to the desk to stow away the moving lab table.
    - This leaves the main floor fully open for any activities which require the space (bringing in carcasses, large shipments of supplies, sanitizing the room)

Pros:

Space for moving desk

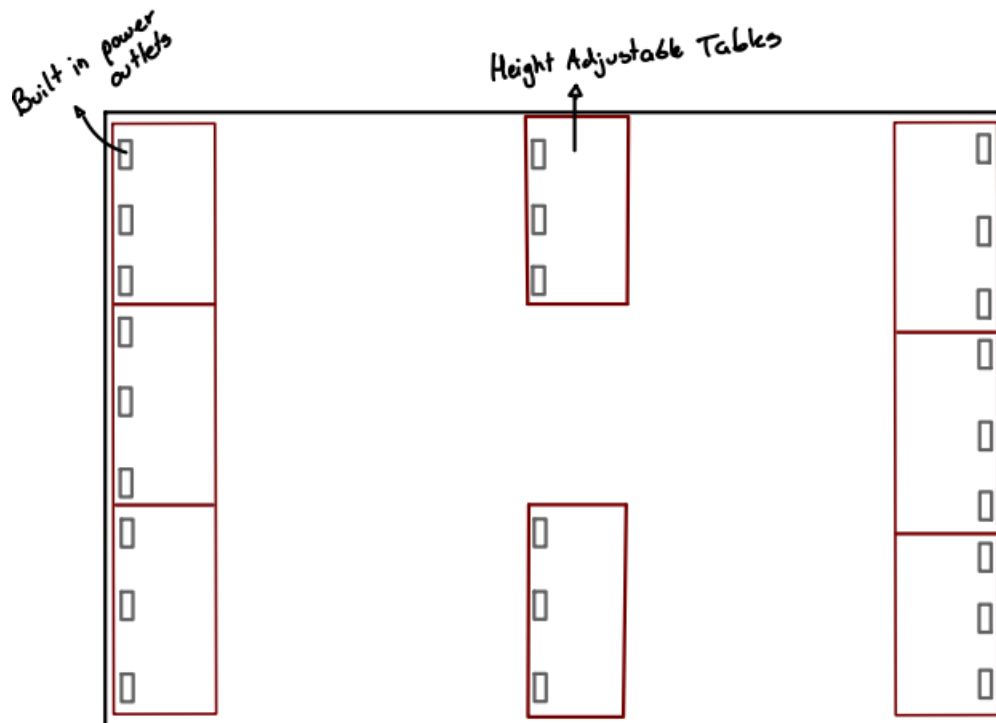
Cons:

Lack of workspaces

Simplistic design

Low storage space

Dani:



### Computer Laboratory/Plant processing

**Power and Data Connectivity:** To accommodate laptops and other electronic devices, make sure tables have built-in power outlets and data ports. Thus, fewer extension cords are required, and cable management is made easier.

**Height-Adjustable Tables:** Choose tables with height adjustments so you may simply cater to the requirements of different people. Particularly standing workstations encourage health and ergonomics.

Pros:

Many stations, adjustable tables, power outlets, data ports included

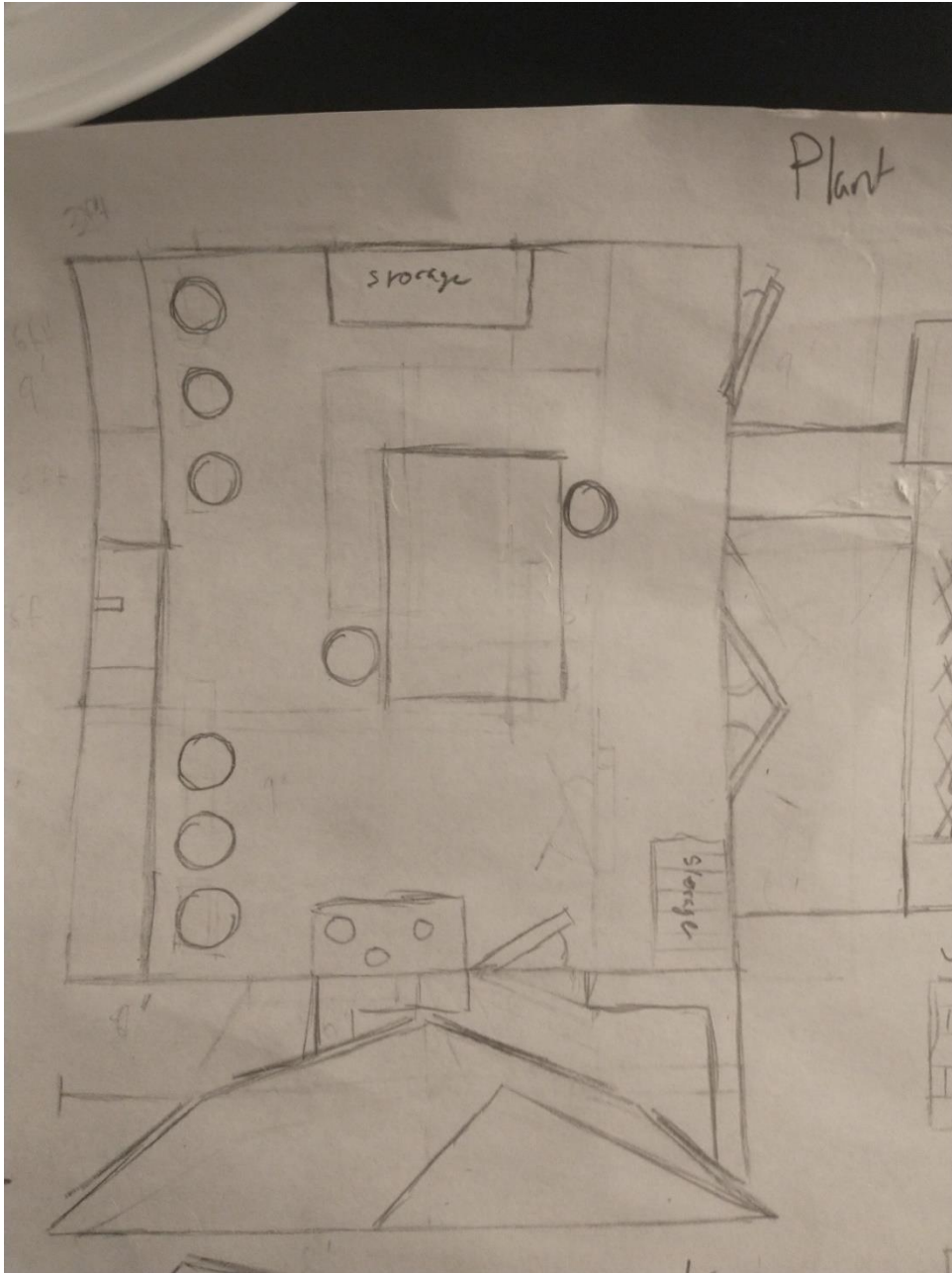
All stations are movable - very modular/configurable

Standing workstations encourage health

Cons:

Inconvenient rolling tables?

Liam:



# Plant Processing





Plant Processing Facility



Open Floorplan: Easy to move around in and adjust equipment but requires more space and makes organization more difficult.

Barn Roof: An elegant and sturdy roof that sheds snow easily but looks old-fashioned and is less ideal for solar panel placement due to the angles and pitch of the roof.

Cedar Shingle Roofing: Pretty, easy to remove roofing material that easily sheds water but is slow/difficult to install.

Timber frame with lath and plaster: gently rustic wall design with plenty of structural integrity and internal space for good insulation but has a risk of the wood rotting and the plaster cracking away from the wall.

Pros:

Excellent idea of independent building

Lovely aesthetics, hatched wood lattices

Flora decorations

Excellent work environment

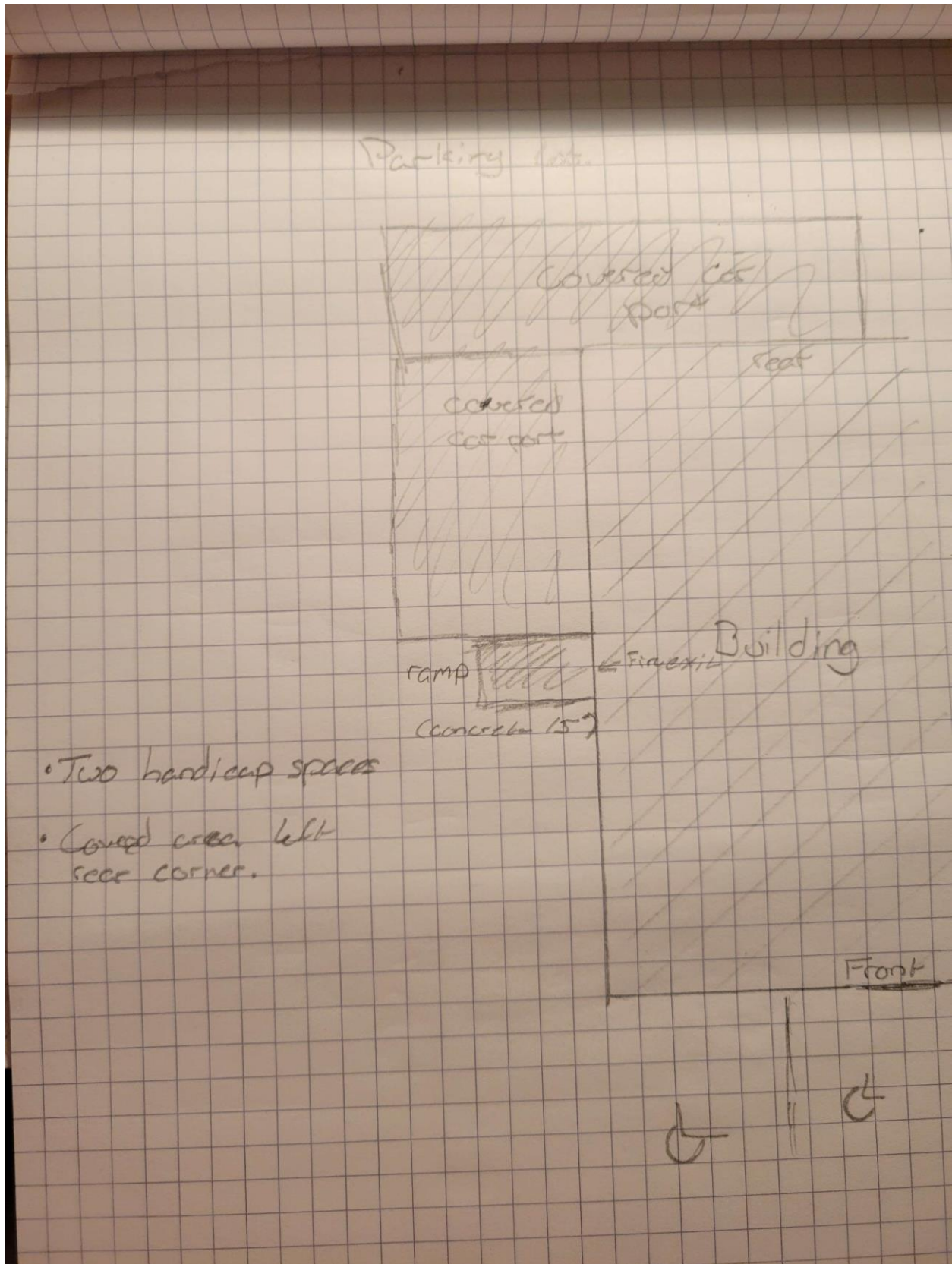
Cons:

More expensive to use a separate building

Less convenient ?

## 3.2 Parking Lot & Loading Dock

**Tyler :**

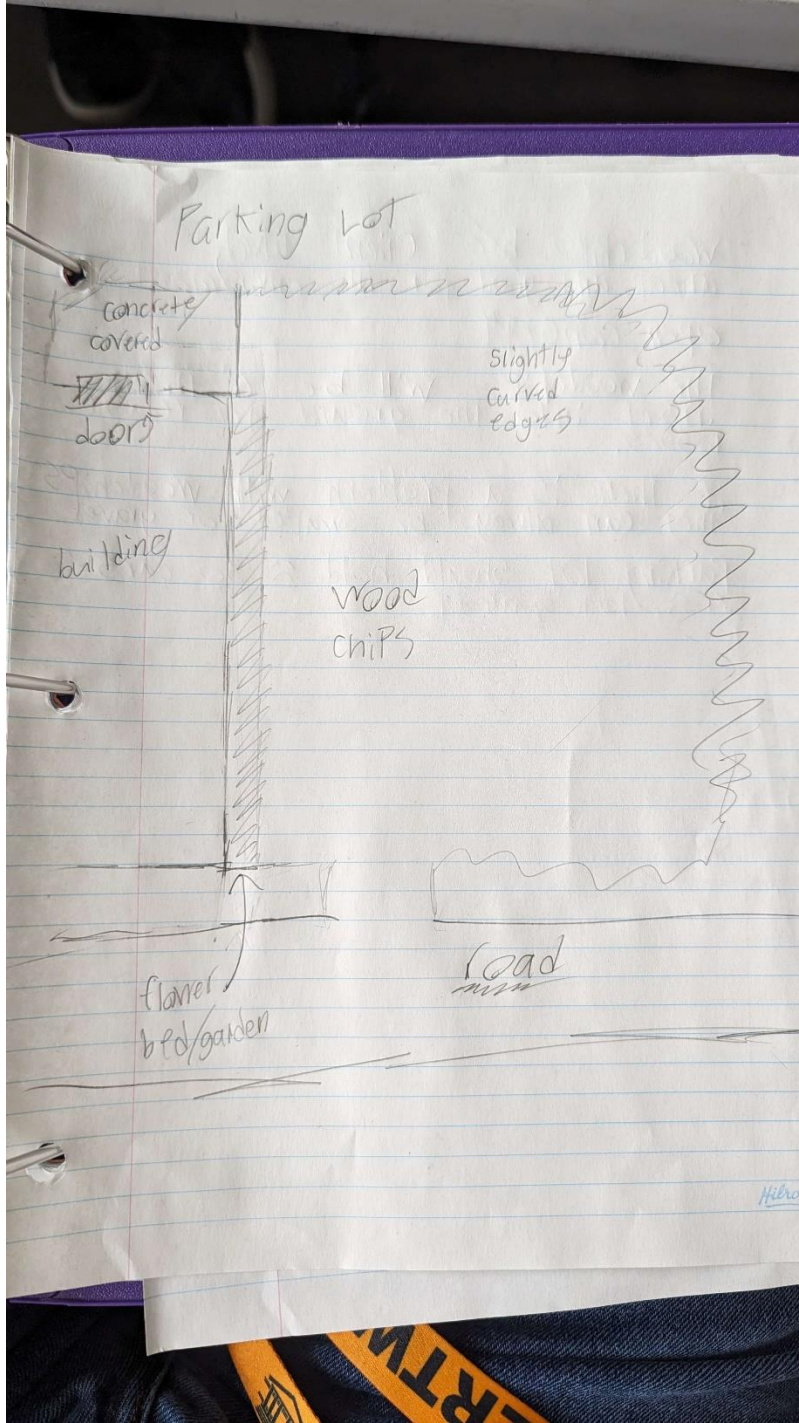


Pros: Adjacent covered area - easy access to building

Accessible handicap spaces

Cons: Minimal covered space

**Benjamin :**



wood chips b/c Client liked  
cheap, and good for the environment

open concept

The woodchips will be 6" thick  
inset into the ground to reduce  
losses.

if there is a problem with woodchips  
they can always be swapped for gravel

Parking lot should hold  $\approx 30$  cars  
 $\therefore \approx 10k$  square ft

Pros:

Woodchip design, eco friendly, safe

Covered loading dock area

Organic design

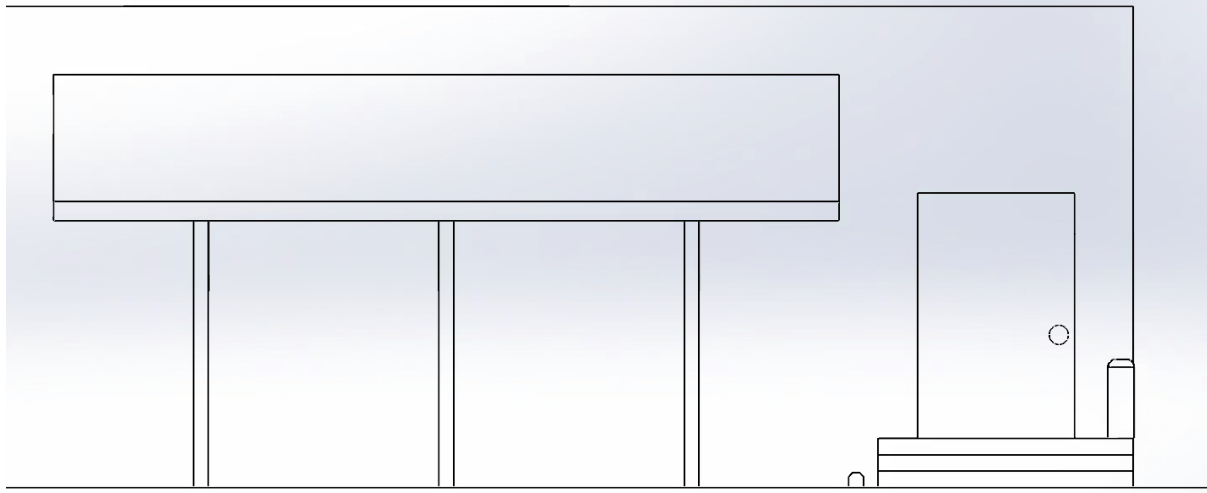
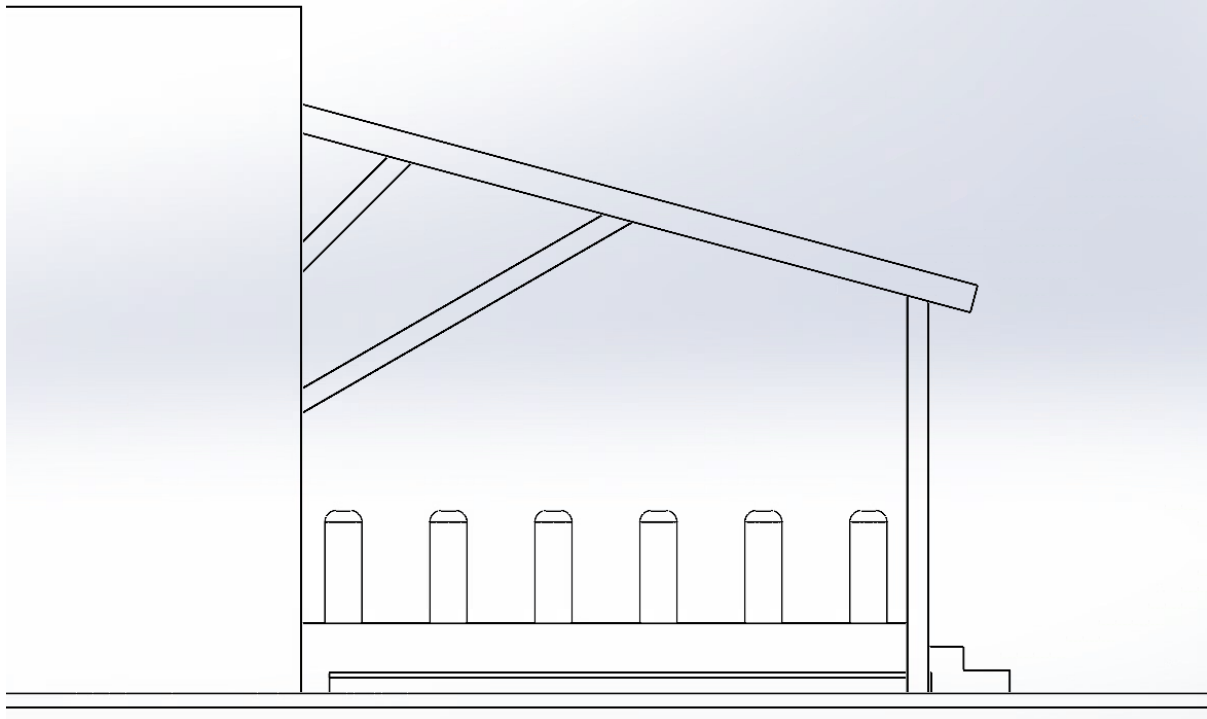
Cons:

Not enough space for 50+ member community events?

**Adam :**









Pros:

Safety curb

Access to building

Covered loading dock

Very organic wraparound woodchip parking lot (client specific)

Cons:

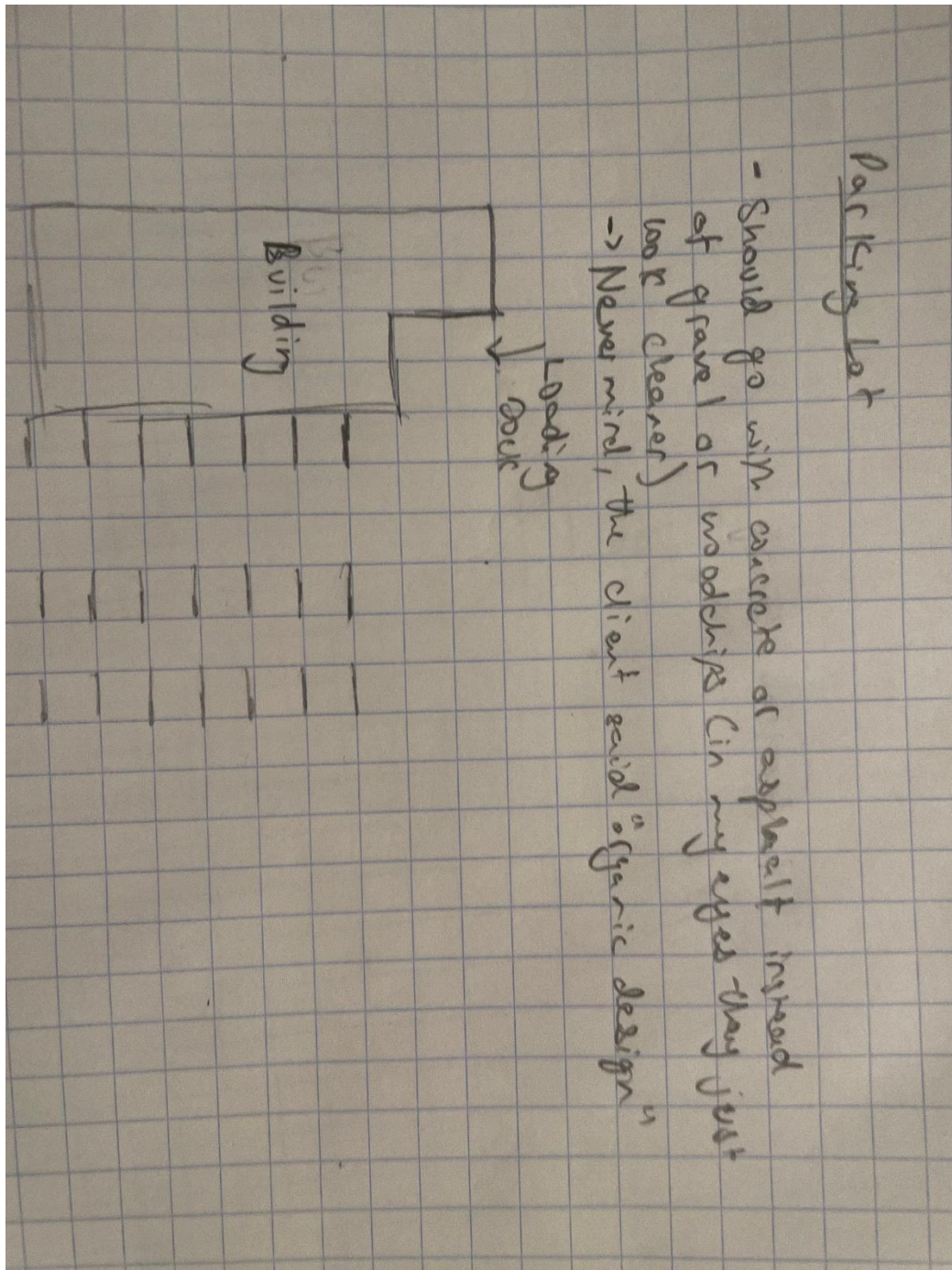
Need ramp for loading dock

More cover space needed for 2 trucks (18x18ft)

Lacks accessibility spaces

**Aditya :**





Pros:

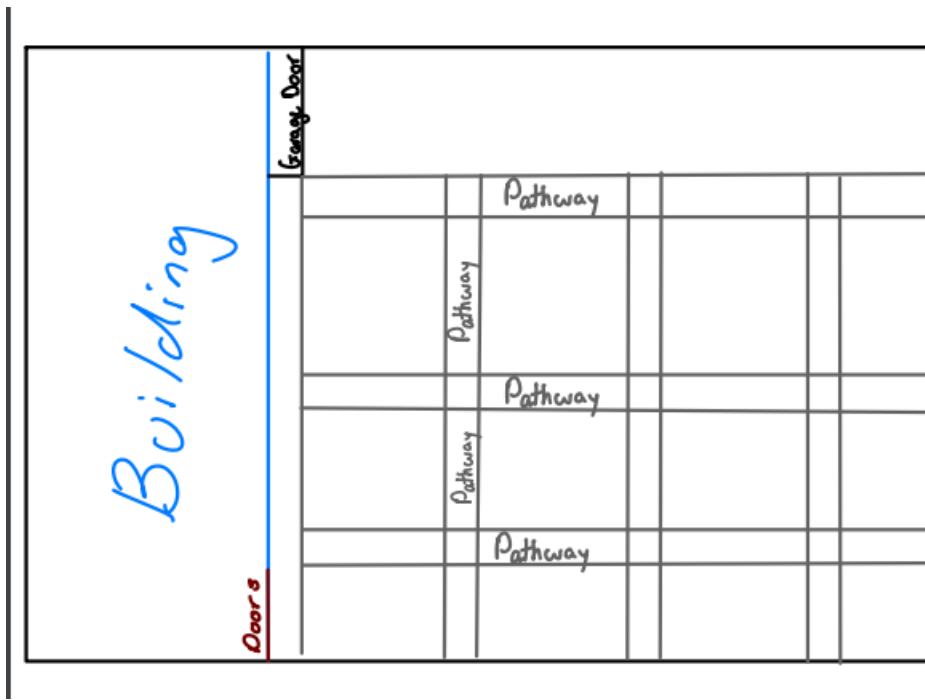
Concrete/asphalt design for sleek or refined design

Well-placed loading dock (uncovered?)

Cons:

Too structured (against client wishes)

**Dani :**



**Parking Lot**

**Pedestrian Walkways:** Pavers or other solid surfaces should be used to designate pedestrian walkways so that they are sturdy and safe, especially in locations where there will likely be a lot of foot traffic.

**Snow Removal:** Prepare a snow removal strategy for areas with harsh winters. To protect the wood chip surface, use caution when shovelling or ploughing snow.

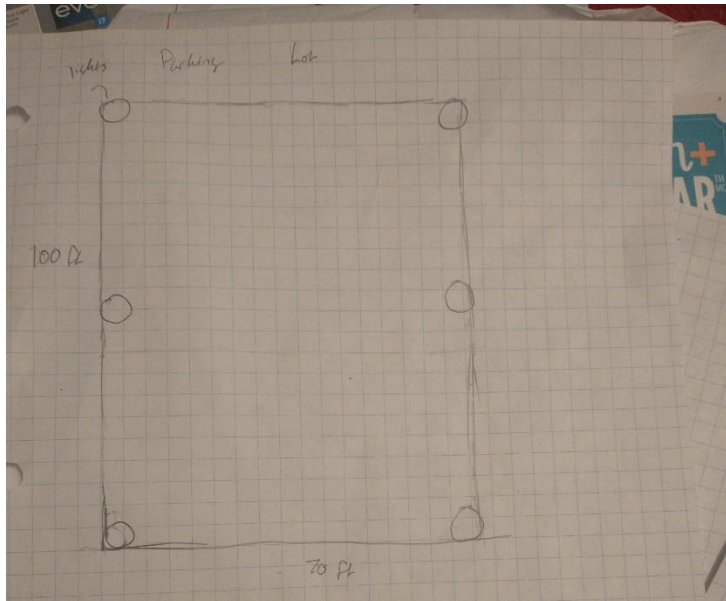
**Pros:**

- Walkable/easy access spaces within parking lot (wheelchair)
- Safe for pedestrians
- Garage door into storage room for easy access of truck supplies

**Cons:**

- Too structured for client
- Uncovered garage door

**Liam :**



Pros:

Efficient

Well lit

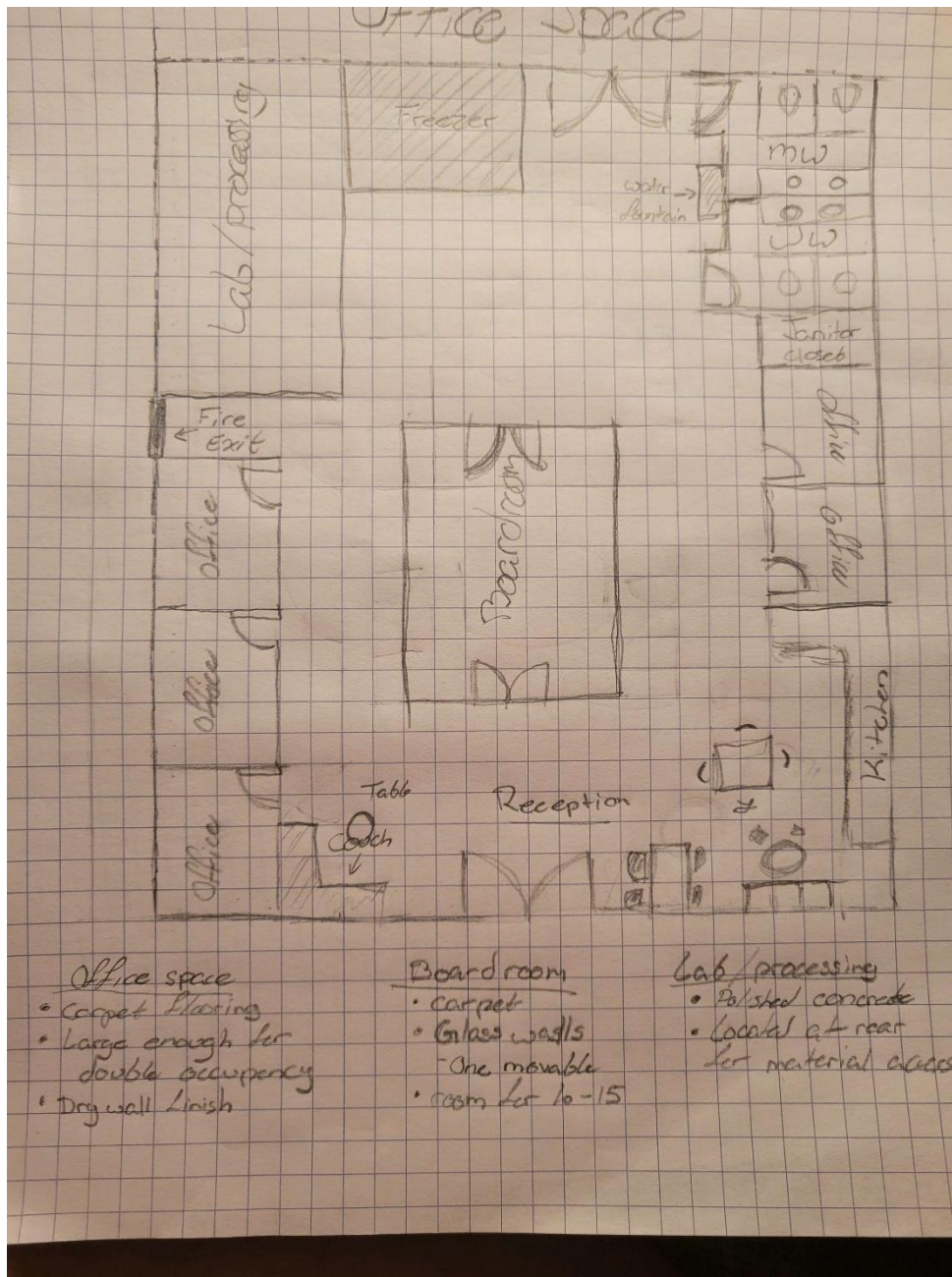
Cons:

Too simple

Too structured (against client specific requirements)

### 3.3 Meeting Room & Office Spaces

**Tyler :**



Pros: Central, open room / centrepiece

Individual cubicles/offices for privacy/work

Cohesive design, integrates with other subsystems

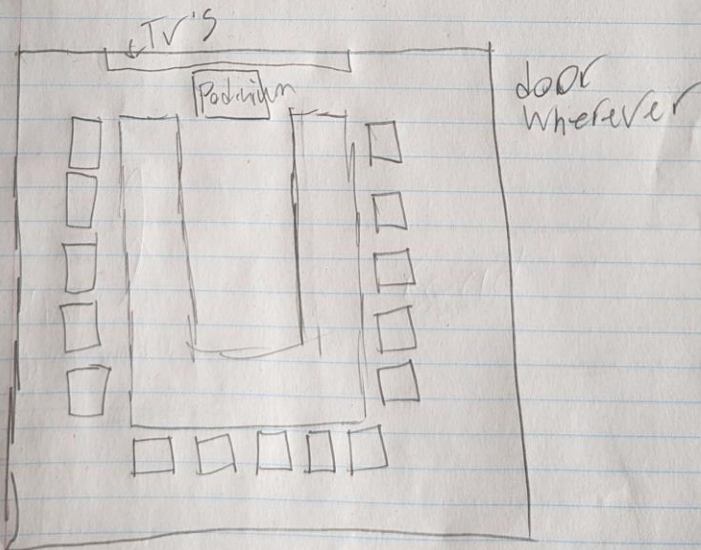
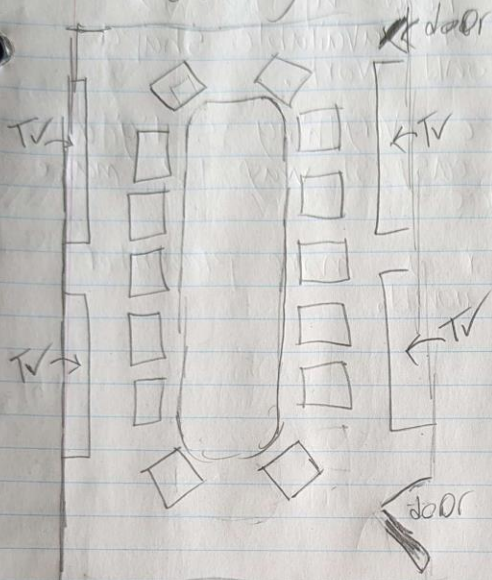
Access to outdoors adjacent to lab placement for quick supplies

Lots of space for walking around centrepiece

Cons: Lab in corner

**Benjamin :**

# Meeting Room



Hilroy

Meeting room holds up to 15  
people, depending on available shape  
either design could work.

many TVs b/c everything is digital  
and it is the easiest way to make  
use of the space.

Two options for a more presenter  
style vs sit around.

Pros:

Two different designs, one longitudinal, one U-shaped (centrepiece)

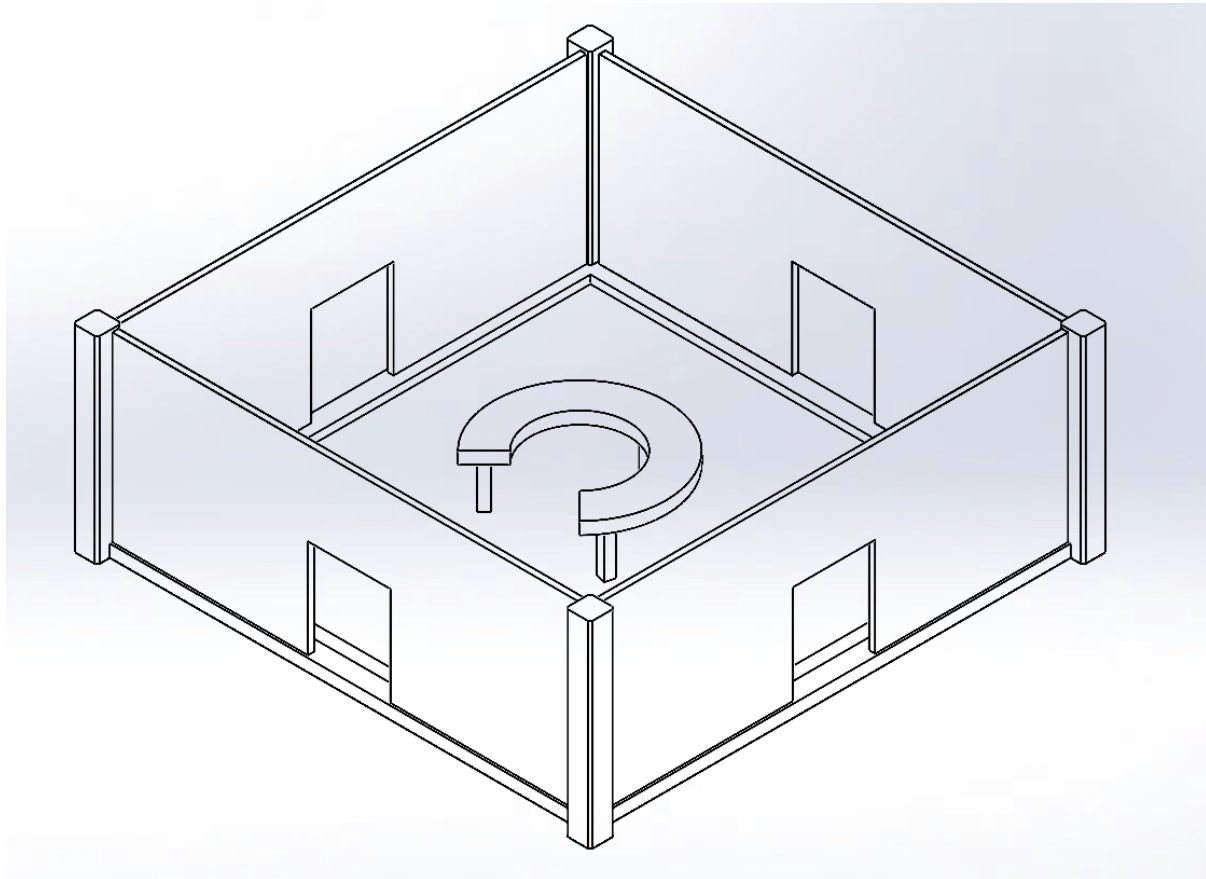
Allows for facing the audience for big presentations

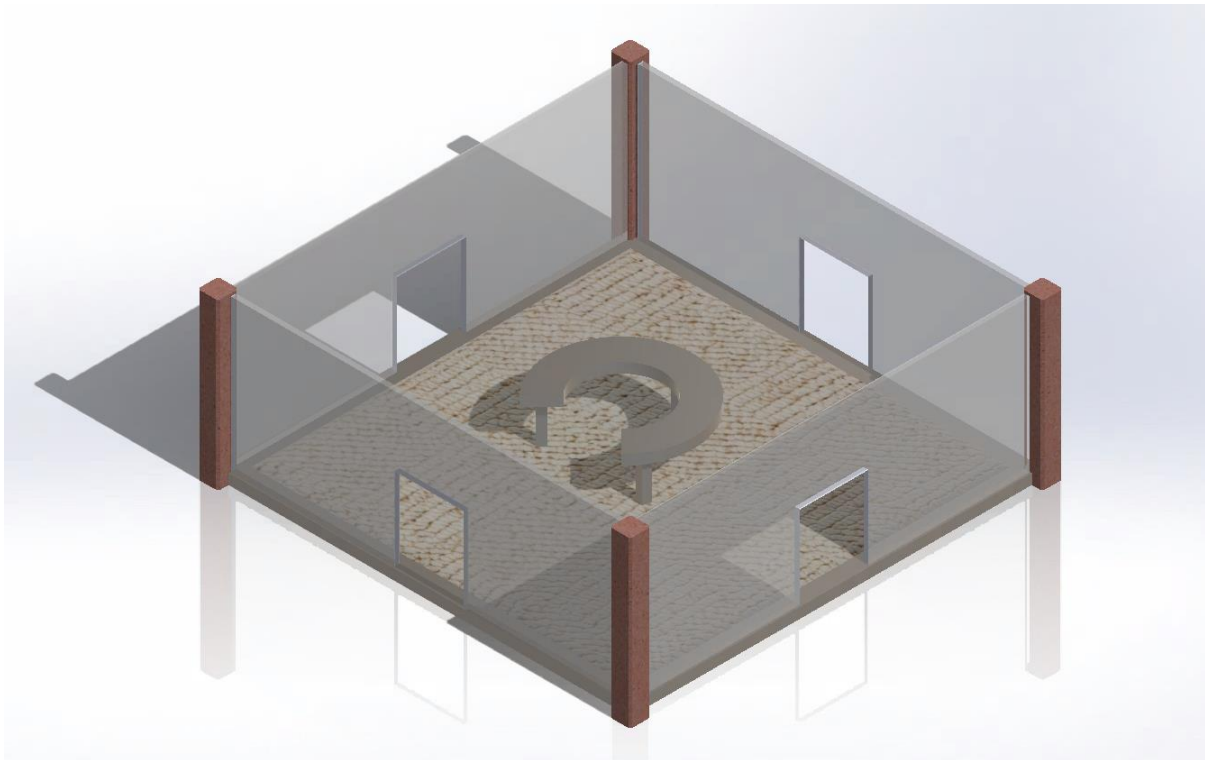
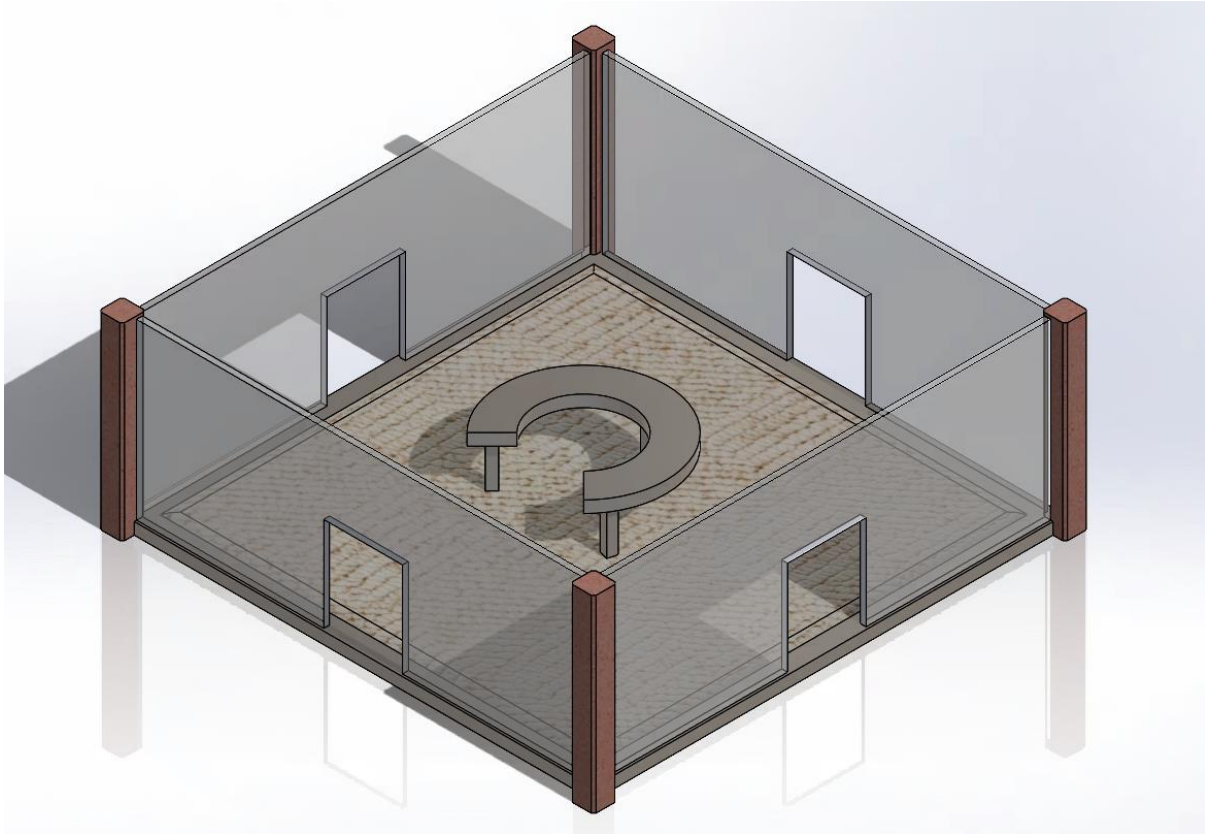
Cons:

Big room - do we need this many seats?

Corporate vibes

**Adam :**





- Glass walls inspired by Tyler's initial designs
  - Open plan, non-claustrophobic



- Round Table for presentation, has positive connotations & unique appearance
- Concrete(?) pillars for stability
- Carpeted floor
- Doors are optional since it is indoors anyways, but if meetings require privacy this design already fails in that margin
- Chairs and whiteboards can be arranged throughout the room as it offers a large amount of space around the table

TV or screen could be mounted within the table if that is preferable

Pros:

Good table

Carpeted floor

Natural lighting

Centrepiece

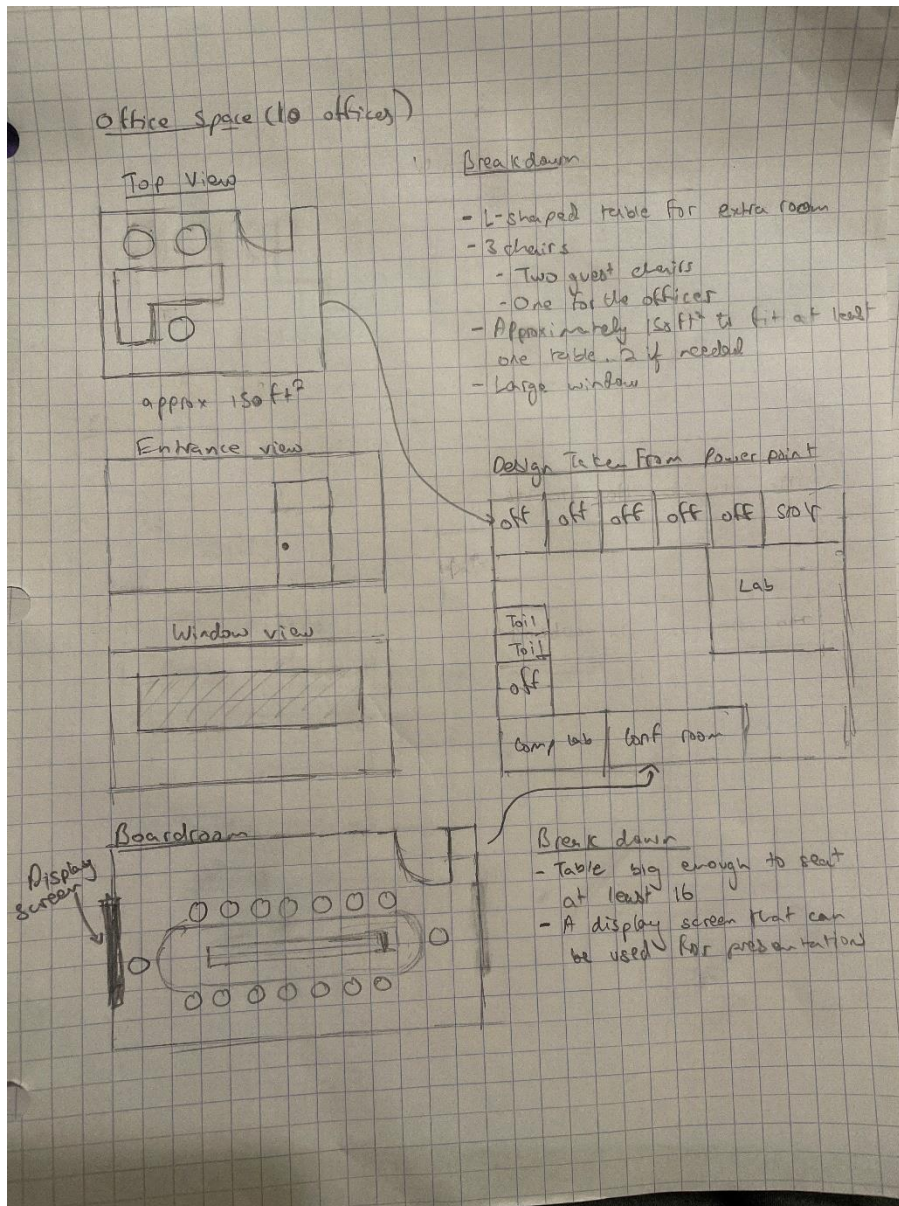
Cons:

Excessive cost/redundancy in glass walls

Fails in privacy requirement

Should have doors for sound deadening

**Aditya :**



Pros:

L-shaped table, less brutalist design

Compact office design

Natural lighting

Compact Room Placement

Longitudinal design for meetings in board room

Cons:

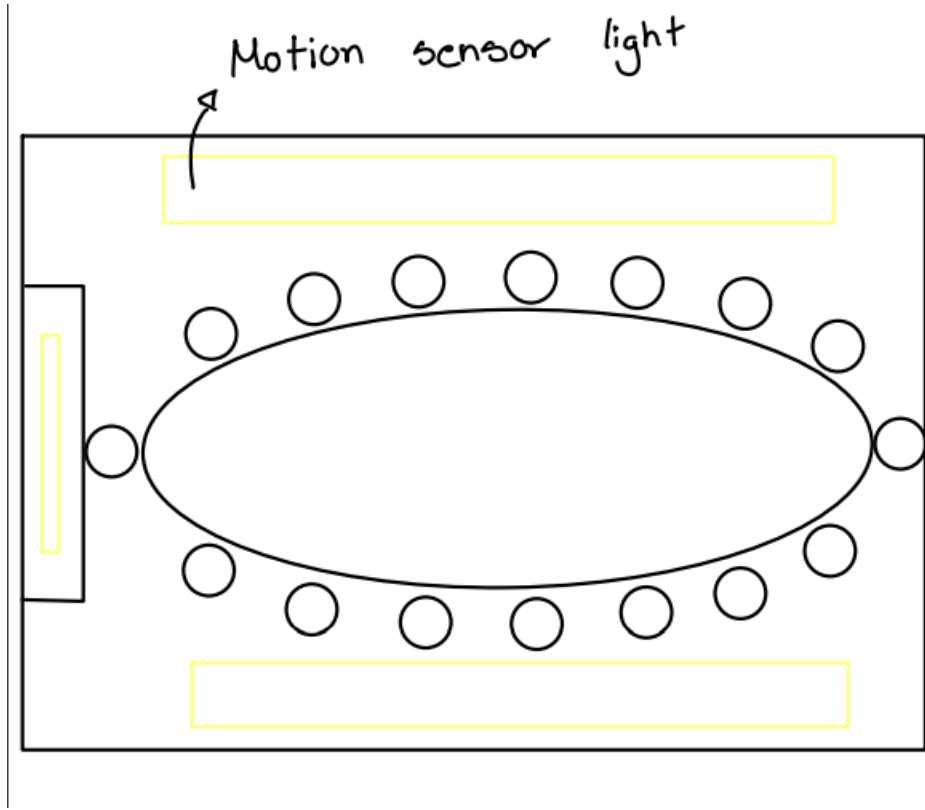
Impossible placement of one office

Corporate feel of boardroom?

Ideas:

Glass doors/windows on doors?

**Dani :**



### Meeting Office

**Energy-Efficient Lighting:** To ensure that lights are only on while the room is occupied, utilise LED or CFL lighting fixtures with motion sensors and timers. To lessen the need for artificial lighting, use large windows or skylights to let in natural light.

Pros:

Energy efficient light (motion sensor)

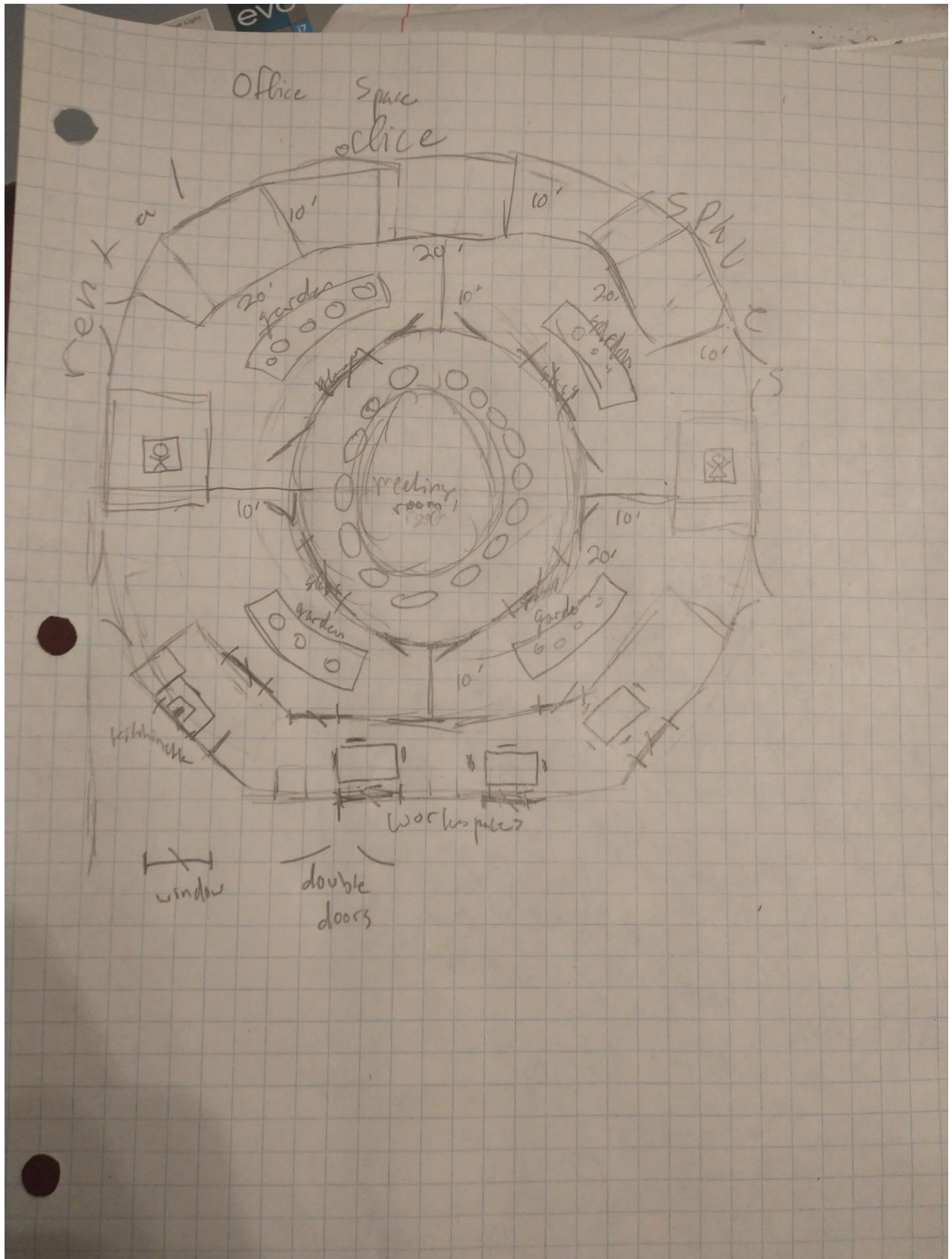
Glass walls - open air

Cons:

A bit big - do we need this much room?

Artificial/corporate vibes

Liam :



Pros:

Circular design: non-corporate, very organic, focuses attention.

Floor-spanning room design, partitions within - open plan

Cons:

Washroom placement at opposite ends?

## 4 Conclusion: Ideal Solutions

Here, we have included a final summary of the Pros and Cons, in order to outline the ideal solution for each subsystem.

### 4.1 The Laboratory subsystem:

Pros (Features to Include):

- Space for a moving desk
  - Movable station tucked away nicely
- Excellent idea of an independent building
- Lovely aesthetics with hatched wood lattices and flora decorations
- Garage door into the storage room for easy access to truck supplies
  - Outside access for easy access to supplies
- Encircling design for efficient movement
- Lots of storage, including a well-designed storage room
- Standing table design, which is safer for the lab
- Sealed floor for easy cleanup
- Freezer space
- Polished concrete floor, known for its durability

Cons (To Avoid):

- Lack of workspaces
- Low storage space
- Uncovered garage door
- Partitioned design, which might limit lab space
- Limited space, especially for moving the table around
- Difficulty transporting supplies into the freezer
- Freezer room cannot have a door connecting to the outside

### 4.2 The Office Spaces subsystem:

Pros (Features to Include):

- Energy-efficient lighting with motion sensors
- Glass walls providing an open and airy atmosphere
- L-shaped table design for a less brutalist look
- Compact office design

- Natural lighting in most designs
- Compact room placement
- Different room shapes, such as circular, longitudinal, and U-shaped are all interesting options
  - Central, open room with a centrepiece
- Individual cubicles/offices for privacy and work
- Lots of space for walking around the centrepiece
- Allows for facing the audience for big presentations

Cons (To Avoid):

- Excessive room size in some designs, leading to concerns about necessity
- Artificial/corporate ambience in some designs
- Placement issues in some designs, such as the impossibility of placing one office or washroom at opposite ends
- Corporate feel of boardroom in some designs
- Excessive cost/redundancy in glass walls in some designs
- Fails in privacy requirements in some designs

#### 4.3 The Parking Lot subsystem:

Pros (Features to Include):

- Adjacent covered area for easy access to the building
- Woodchip design, eco-friendly, and safe
  - Organic wraparound woodchip parking lot
- Covered loading dock area
- Organic design
- Walkable/easy access spaces within the parking lot (wheelchair accessible)
  - Accessible handicap spaces
  - Safe for pedestrians
- Garage door into the storage room for easy access to truck supplies
- Concrete/asphalt design for a sleek and refined look (depends on client)
- Well-lit
- Safety curb for loading dock

Cons (To Avoid):

- Minimal covered space
- Not enough space for 50+ member community events
- Too structured against client wishes
- Too simple
- Lack of ramp for the loading dock
- Not enough covered space for two trucks (18x18ft approx.)
- Lacks accessibility spaces

## 5 Wrike Link

As discussed during the Project Specific lab, our group has had significant issues using Wrike (our old Wrike is inaccessible due to expired trial). We are in the process of copying over the new Wrike, but this is not yet ready. We will email the TA the wrike snapshot link for this deliverable ASAP, as advised during the lab on October 19<sup>th</sup>.