

Community Plant Processing Centre

Conceptual Design

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GNG1103 - A04

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Introduction

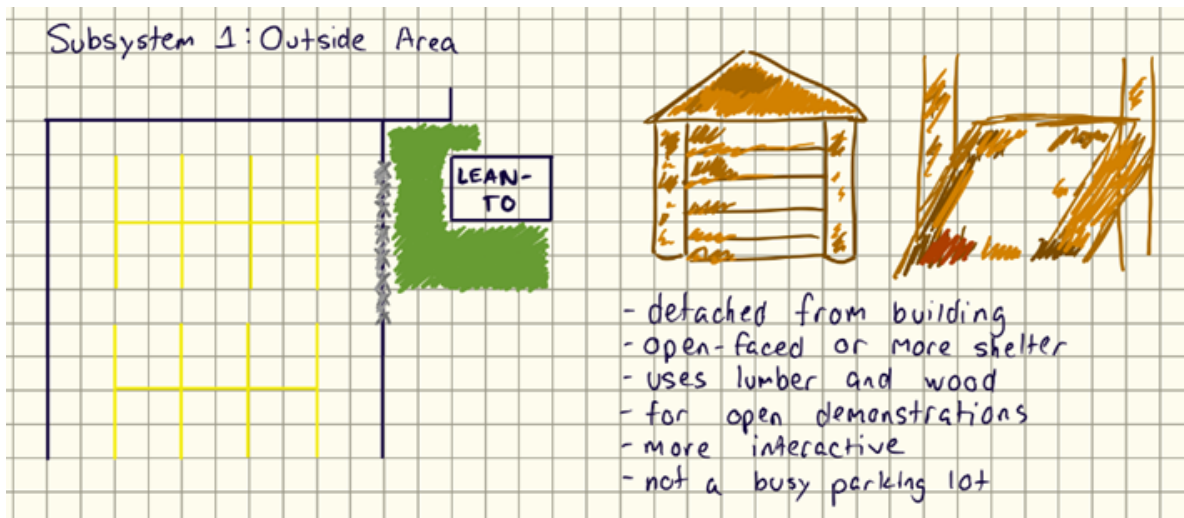
Over the course of this phase of the design process, we've developed a series of concepts for the subsystems of the Community Plant Processing Center intended for the First Nations Guardianship program. In addition, a complete system has been designed that is able to incorporate the various concepts created should a change in plans be necessary. This is all to ensure a final product that is well-equipped to handle the needs of the client is produced, therefore this document is essential to the design process and the ultimate creation of a suitable building for the First Nations Guardianship program.

Concepts

The following depicts the subsystem concepts developed by the team, along with some of their core drawbacks and benefits.

Outdoor Area:

Idea X1



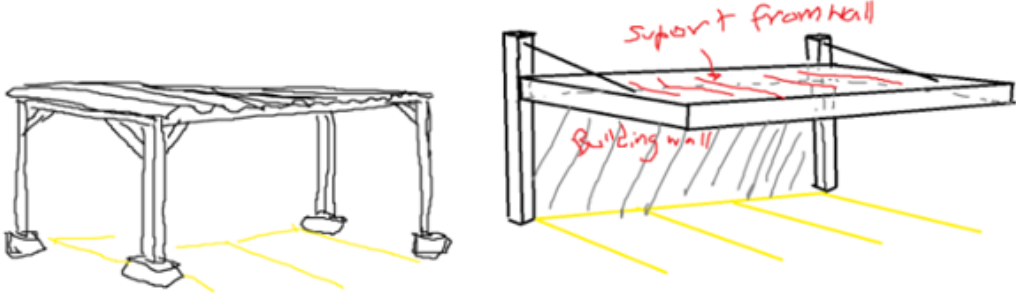
(Above Depicted by Matthew Chan-Barcellos)

Benefits	Drawbacks
- Separate from the main building, allows	- Per client, not essential to design;

for more customization.	therefore would not be cost-efficient.
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Idea X2

- o parking/ roofed off area for activity(simple standalone system, wall attached system.

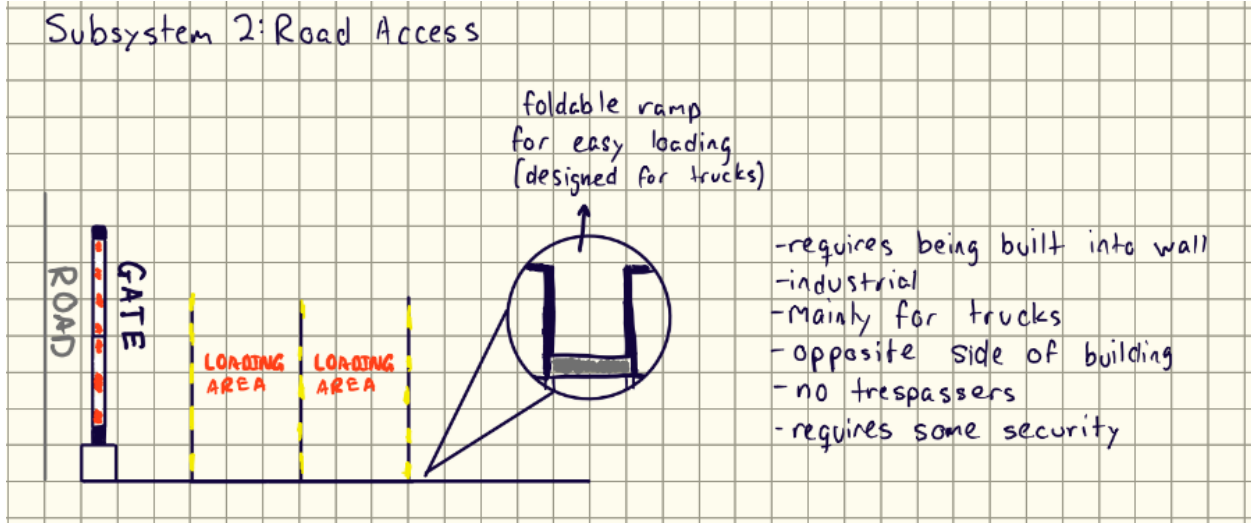


(Above Depicted by Ludvig Tholen)

Benefits	Drawbacks
<ul style="list-style-type: none"> - Cheap with easy access and use. - More accurate to clients' desires 	<ul style="list-style-type: none"> - No significant drawbacks as it meets the requirements of this subsystem.

Road Access:

Idea R1

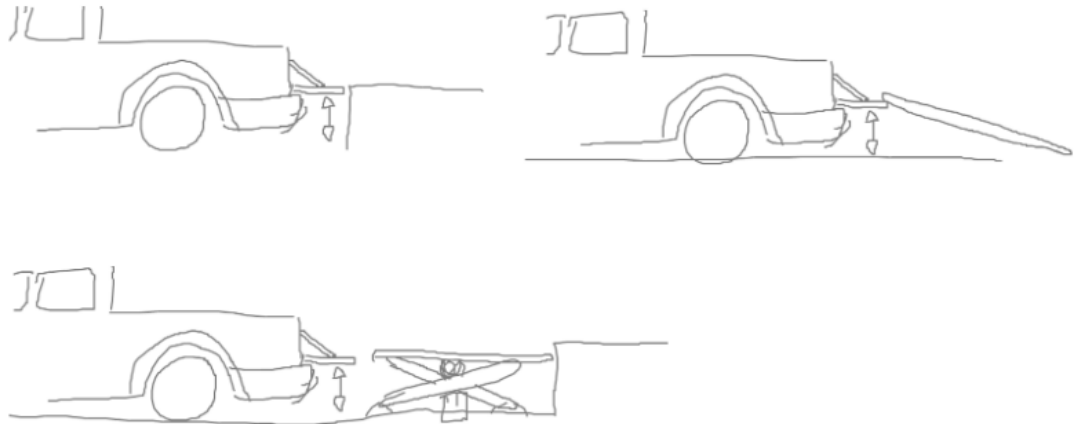


(Above Depicted by Matthew Chan-Barcellos)

Benefits	Drawbacks
<ul style="list-style-type: none"> - Increased security for deliveries 	<ul style="list-style-type: none"> - Not cost-efficient for the scale of the project we're currently undergoing

Idea R2

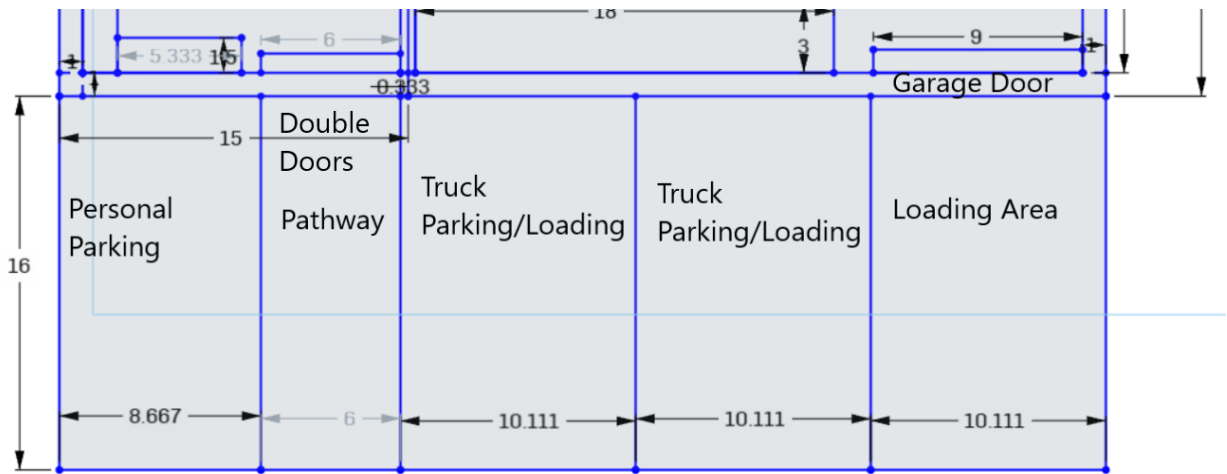
- o loading/unloading dock (curb design, ramp design, hydraulic lift system)



(Above Depicted by Ludvig Tholen)

Benefits	Drawbacks
<ul style="list-style-type: none"> - Curb Design is most stable. - Ramp Design is the cheapest. - Hydraulic lift is most adaptable. 	<ul style="list-style-type: none"> - Curb Design is least adaptable. - Ramp Design is the least stable. - Hydraulic design is expensive.

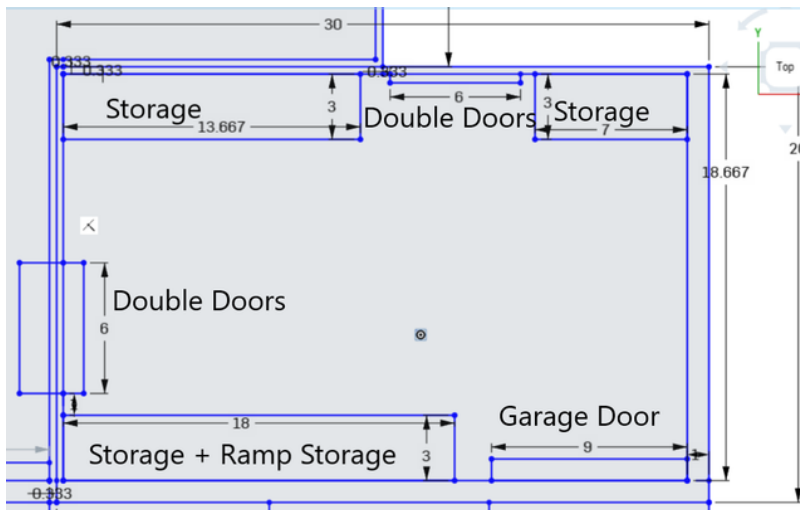
Idea R3



(Above Depicted by Alex Cherkassky)

Benefits	Drawbacks
<ul style="list-style-type: none"> - Easy access to building - Wide spaces for wide trucks - Large door for easy transport of materials 	<ul style="list-style-type: none"> - Low Capacity

Idea L1



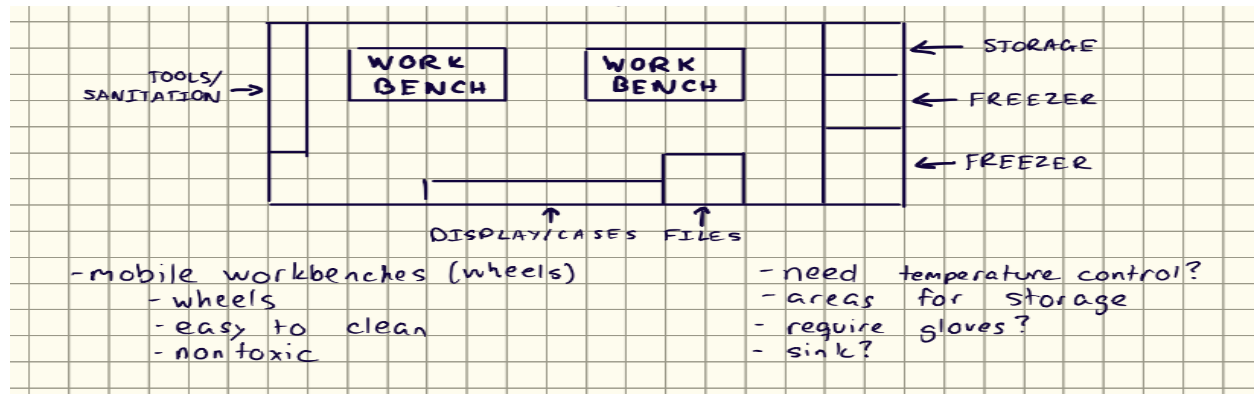
(Left Depicted by Alex Cherkassky)

Benefits	Drawbacks

<ul style="list-style-type: none"> - Most Secure design with total enclosure. - Allows for additional storage - Allows for incorporation of other concepts. 	<ul style="list-style-type: none"> - Large and bulky.
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Plant Processing:

Idea P1

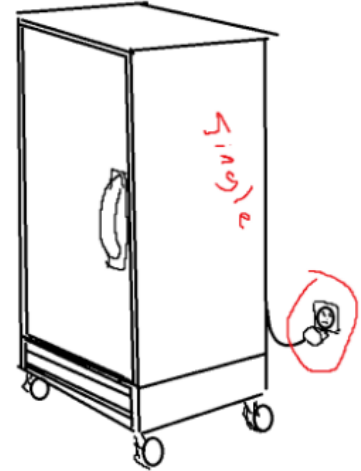
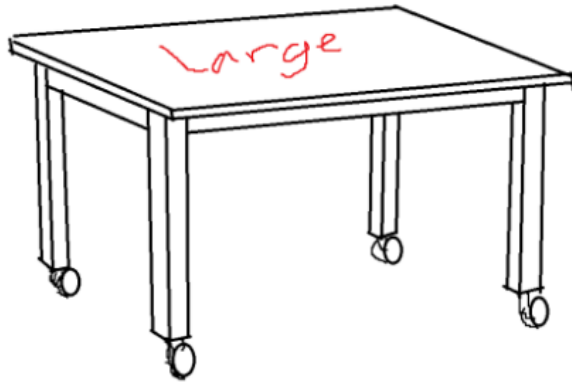


(Above Depicted by Matthew Chan-Barcellos)

Benefits	Drawbacks
<ul style="list-style-type: none"> - Compact, Efficient. 	<ul style="list-style-type: none"> - Lacking in workspace and freezer storage for large animal carcasses.

Idea P2

- Plant processing, table/workbench to prep/package plants or do other projects on, as well as a freezer within the area in order to keep samples cool.
- Table is required to be easy to clean, nontoxic, non leaching, mobile and must be large. It will need to be a clean



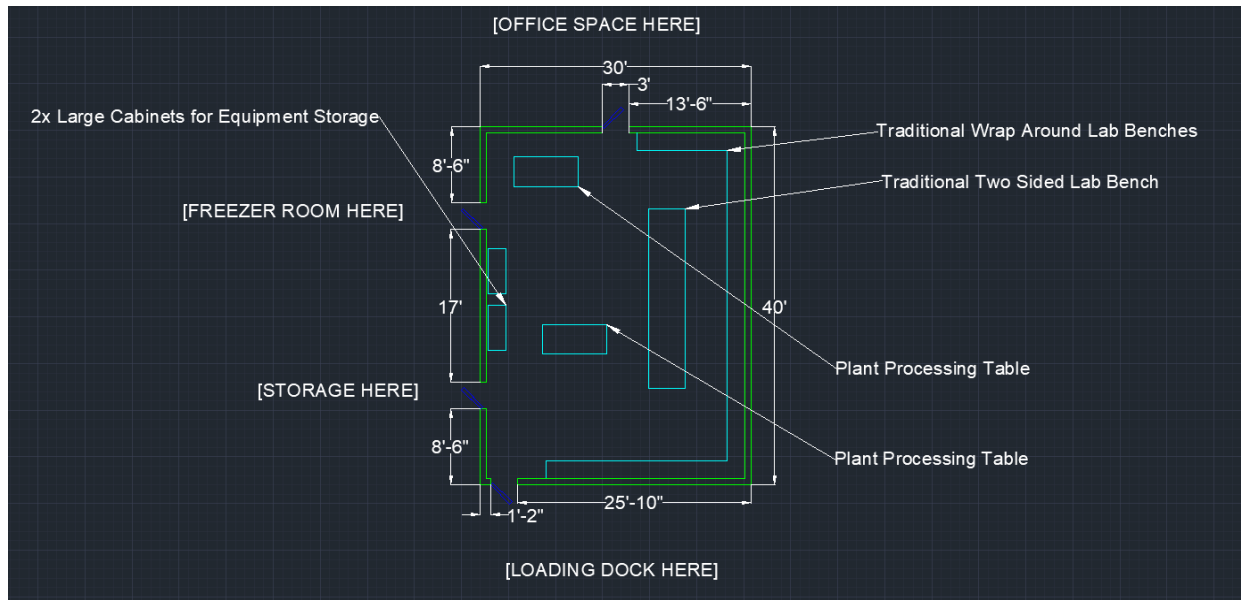
and nontoxic workstation because samples will be handled on the top which are required to be quite sterile.

- The fridge is required to keep samples cool, as well as be able to move and traverse. Special plugs are required for freezers (determined by its capabilities and size) because the fridge can consume more power than is within a range for a regular plug. Single fridge used because of cold storage (see subsystem #6).

(Above Depicted by Ludvig Tholen)

Benefits	Drawbacks
<ul style="list-style-type: none">- Greater Flexibility- Sanitary	<ul style="list-style-type: none">- Cost

Idea P3

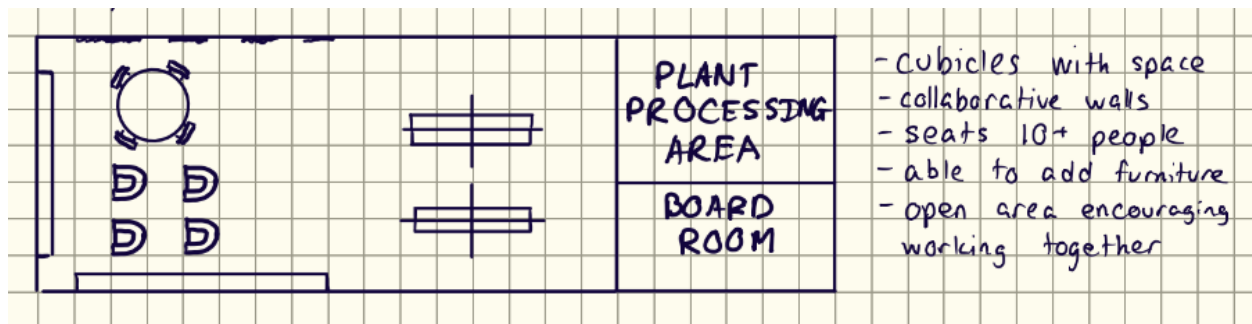


(Above Depicted by Kavinaraj Navinaraj)

Benefits	Drawbacks
<ul style="list-style-type: none"> - More space for workspaces and equipment. - Integrated with a Walk-In Freezer and Storage room. 	<ul style="list-style-type: none"> - Large-scale laboratories may be costly to sanitize.

Office Rooms:

O1

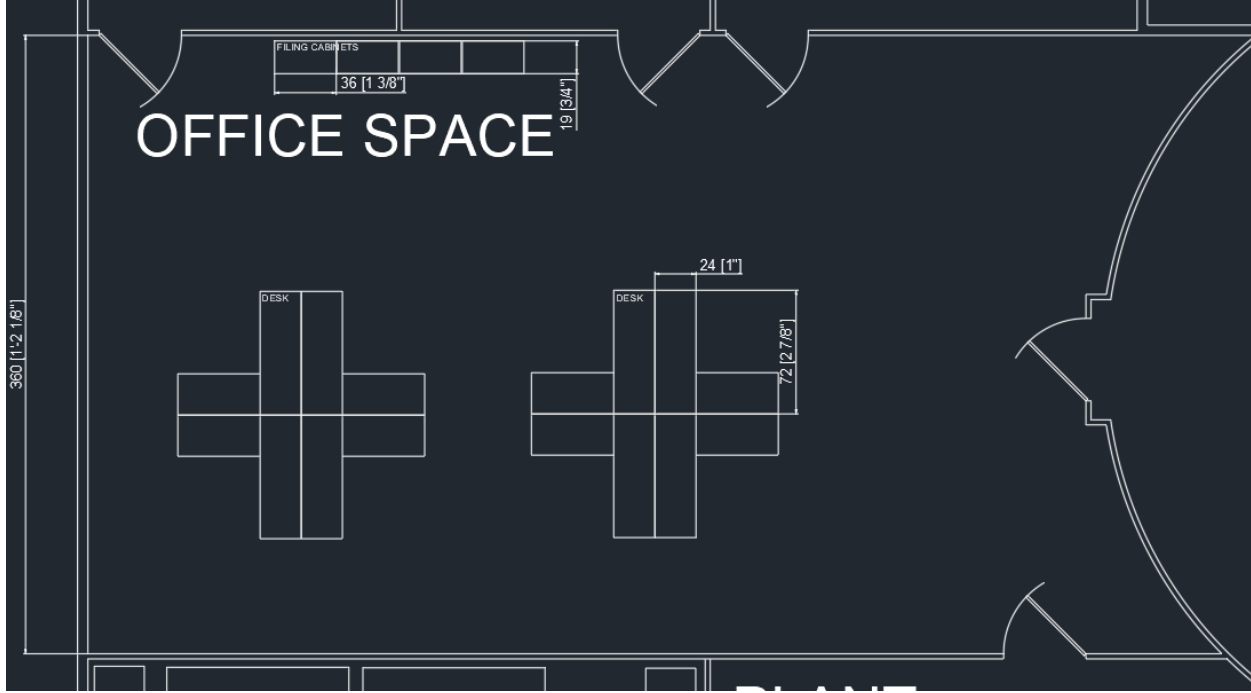


(Above Depicted by Matthew Chan-Barcellos)

Benefits	Drawbacks
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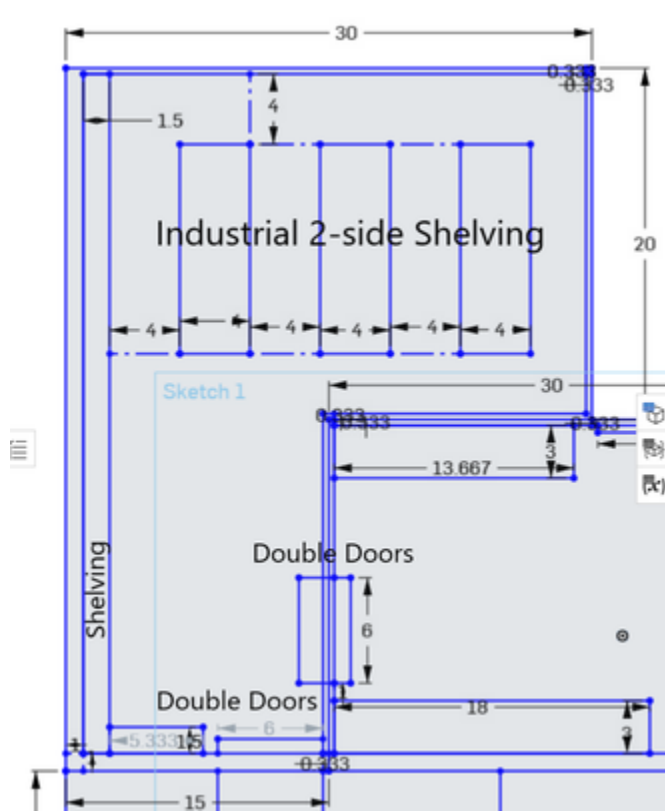
<ul style="list-style-type: none"> - Open office design for greater collaboration. 	<ul style="list-style-type: none"> - Interference between office space and presentation space
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Idea O2



PROS	CONS
<ul style="list-style-type: none"> -desk spaces for users -filing cabinets for lots of storage 	<ul style="list-style-type: none"> -Won't be used every day(the smaller single offices will be used instead)

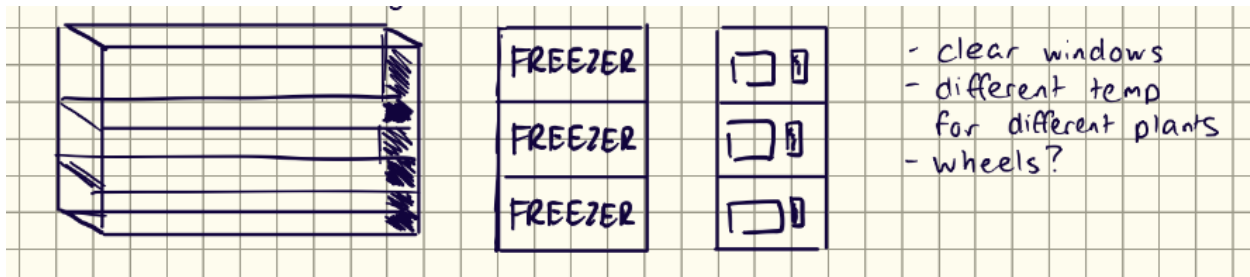
Storage Space:



(Above Depicted by Alex Cherkassky)

Benefits	Drawbacks
<ul style="list-style-type: none"> - Space for Large Items - High Capacity 	<ul style="list-style-type: none"> - Difficult to transport items between rooms

Idea S2

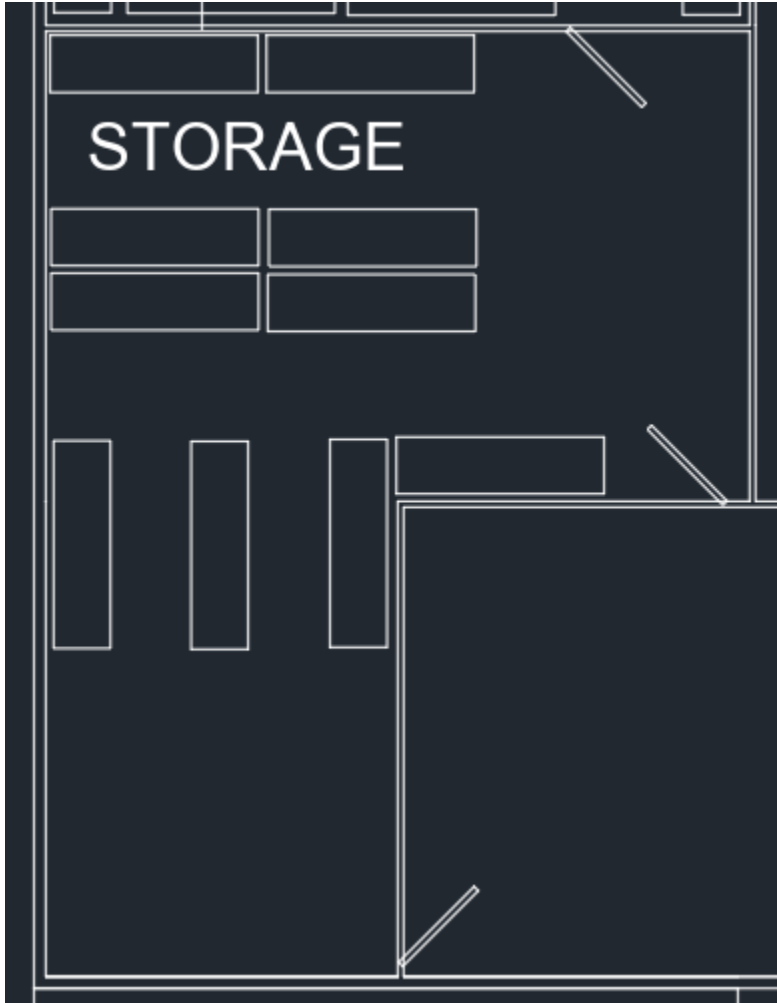


(Above Depicted by Matthew Chan-Barcellos)

Benefits	Drawbacks

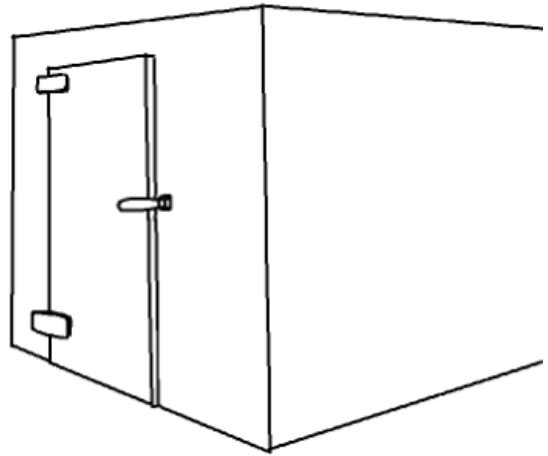
<ul style="list-style-type: none"> - Easy access to items 	<ul style="list-style-type: none"> - Multiple individual Freezer units can drive up costs. - Lower capacity
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Idea S1

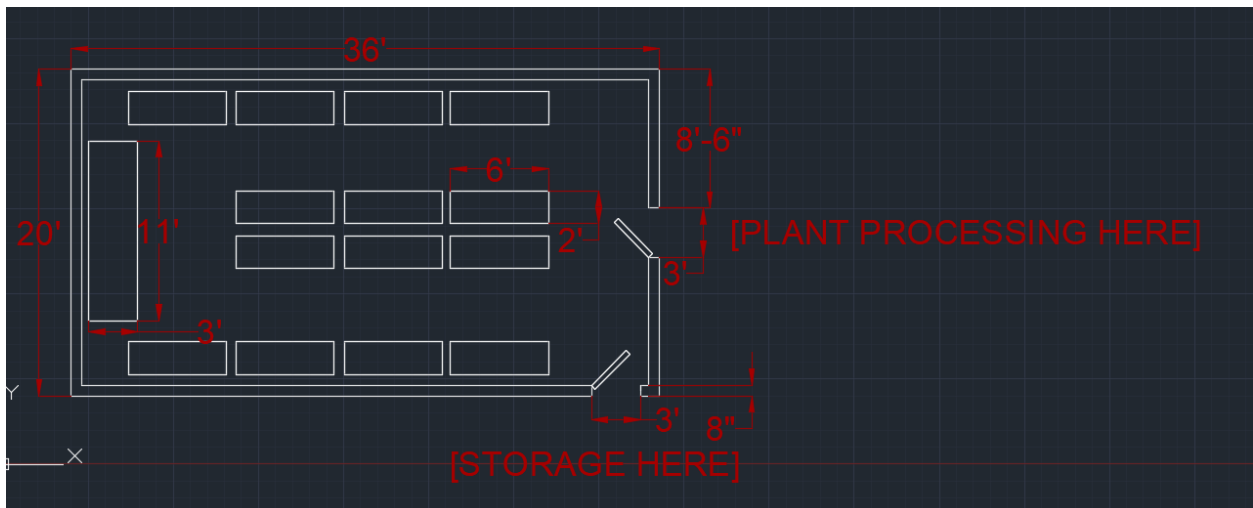


Benefits	Drawbacks
<ul style="list-style-type: none"> - Easy access to items - High Capacity 	<ul style="list-style-type: none"> - Difficult to move large items between rooms

Idea S2



(Above Depicted by Ludvig Tholen)



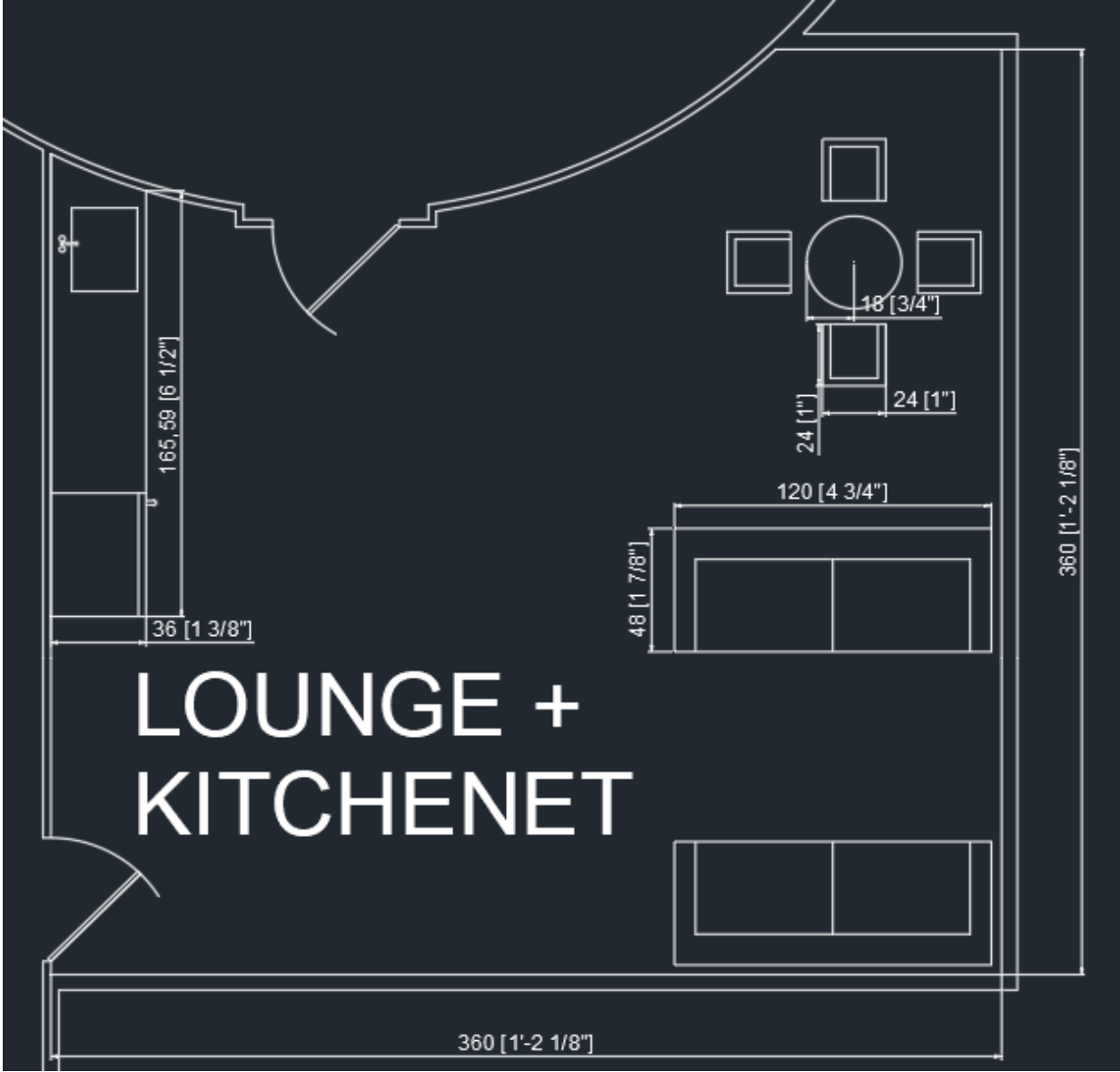
(Above Depicted by Kavinraj Navinaraj)

[Both Options Depicted Above Utilize the Same Concepts]

Benefits	Drawbacks
<ul style="list-style-type: none"> - Very high capacity for cold storage - Less material costs 	<ul style="list-style-type: none"> - Increased danger as users could get locked in a room, requires some training.

Kitchenette & Lounge:

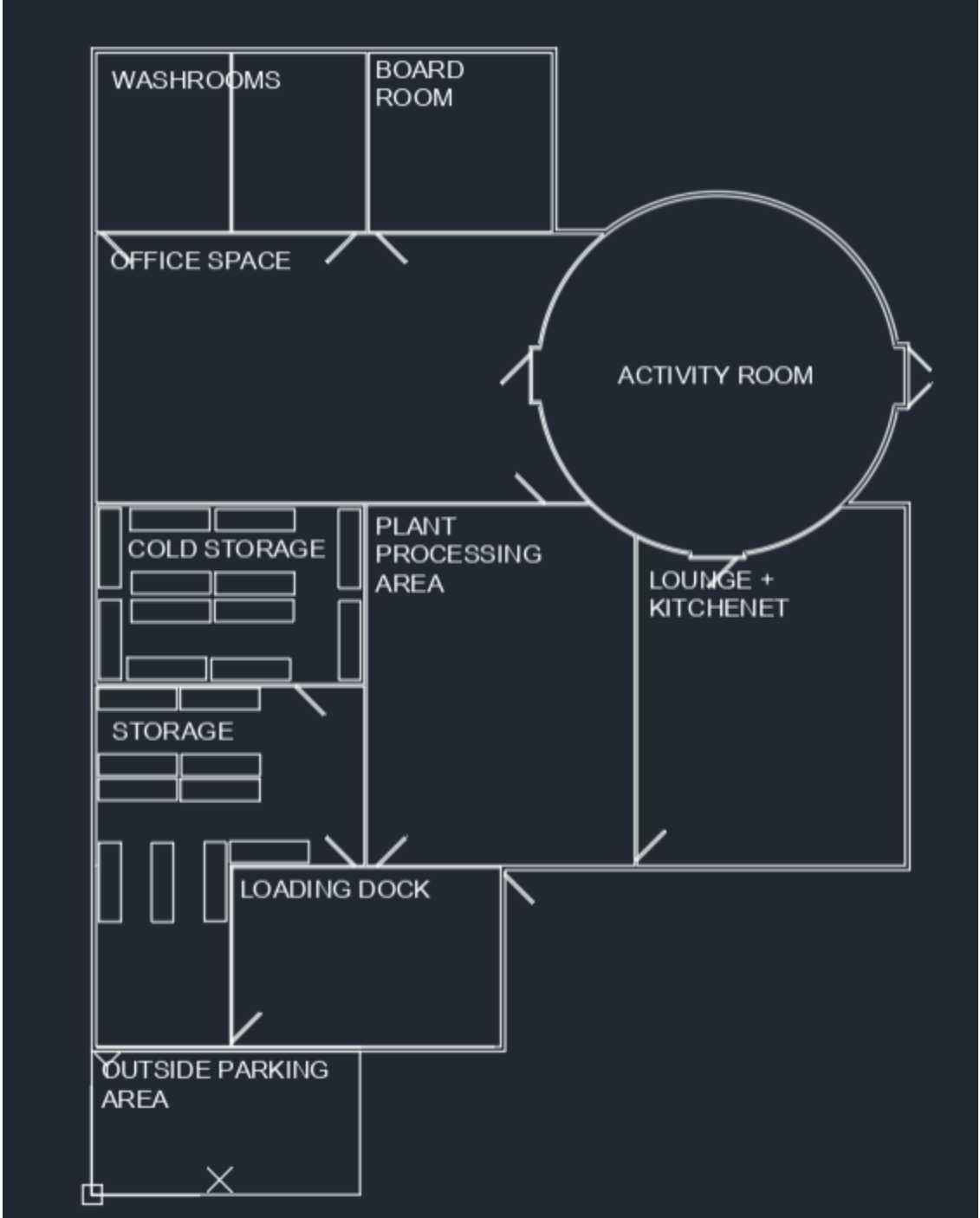
Idea K1



PROS	CONS
<ul style="list-style-type: none"> -Good place to take a small break -Eating area -heating up food, and keeping food refrigerated 	<ul style="list-style-type: none"> -Might not be useful on daily basis -will require someone to keep it clean

Final Solution

Our solution consists of a layout that is depicted below, utilizing the most viable concepts discussed above.



Subsystem	Reasoning
Outside Parking	A paved area that is able to hold a minimum of 6 cars primarily used for office workers (trucks not included).
Plant Processing	Lab selected with additional space for 2 Processing Tables, as well as storage and lab benches for other uses.
Cold Storage	Walk-In Freezer selected for its high capacity and increased efficiency regarding cooling large quantities of materials.
Office Spaces	Individual office spaces with enough space for a desk and two chairs (one for a visitor to sit in)
Office Space*	Open office area with cubicles for workers who are not in every day.
Board Room	Space for meetings or chats, with the ability to present on a screen or write on a whiteboard mounted to the wall.
Outdoor Lean-To	Cheap attached structure to the side of the building selected for cost-efficiency for low risk equipment storage.
Loading Dock	Loading dock with secure Garage door selected, allows for increased storage capacity and ease of access to essential rooms for use.