Deliverable F - Construction team 1 - Prototype and Customer Feedback

The prototyping of our shed is a crucial part of the design process. This document outlines the process of prototyping set by our construction team. Various aspects of the shed need to be researched to meet our criteria. For each aspect, our team has set objectives that the aspect needs to meet. The table below describes the objectives as well as why they need to be met. The table then describes how the team will find a conclusion that meets the objectives. The results of our research are then listed. Using this table, our team can find the most effective design for our prototype.

Sl. no	Aspect	Objectives	Why	When	How	Result
1	Window	- Needs to meet Ontario Building Code as a means of egress. - Needs to be in an appropriate place. - Needs to be of appropriate material. - Needs to be a high enough R-value. - Needs to let in enough sunlight. - Needs to be big enough for people to escape.	- Window needs to function as a fire escape, while being energy efficient.	- March 27th, 2019	- By researching and comparing windows available on the market. By reading the Ontario Building Code.	-Window needs to be no more than 42” from the floor. Window size 18” x 36”. Glass will be double pane insulated clear glass.
2	Door	- Needs to meet Ontario Building Code as a means of egress. - Needs to have a high enough R-value.	- Our prototype needs to improve the livability of the shed. Building	- March 27th, 2019	- By researching various doors, and then comparing which of the options is the best	-Door will be a 32” x 80” fiberglass exterior door.

		- Needs to be tall enough for a 6’ 4” person. - Add to the aesthetic appeal of a house.	Code and R-value improve livability.		at meeting building code, and at achieving the highest R-value.	
3	Siding	- 40 year longevity - Protection against wind - Protection against rain - Protection against dust - Prevention from wood rotting, mold growth, and other interior damage.	- We need to ensure that the siding will perform well at protecting the walls of the shed from weather. - The walls of the shed need to be protected from molding and rotting.	- March 27th, 2019	- Researching and comparing siding available on the market. Selecting the option that best meets objectives.	- Siding will be horizontal vinyl siding.
4	Roof (shape/ size)	- Sufficient size for solar panels - Sufficient slope to shed water - Low enough slope to make roofing easy - Weather conditions? -- rain or snow - Shape is suitable for harsh Canadian weather condition	- This prototype needs to ensure that the roof will hold up to harsh Canadian winters. It also must verify that the solar team will be accomodated and that the angle of the roof will be easy enough to shingle.	- March 27th, 2019	- Researching and comparing different styles of roofs to find the most efficient for solar panels, while keeping the slope to a minimum.	-Roof will be a gable roof, with a 4/12 slope.

5	Roof (materials)	- 25 year longevity - Able to withstand Canadian winter	- Improvement to the value and lifetime of the roof will improve the worth and longevity of our livable shed.	- March 27th, 2019	- Researching and comparing different roofing materials to find and use the most effective material for protection against harsh weather and extending the lifetime of the roof.	- Roofing material will be asphalt shingles.

Table of Assumptions

Assumptions	Riskiest or not	Method to Verify
The panels will fit together	Riskiest	Measure the corners of each panel and make sure that each panel is perfectly square.
The shed is built on a level surface	Not	N/A
Shed will not blow over	Not	N/A
Lumber is not too warped	Not	N/A

Aspect 1: Window

Objectives:

- Needs to meet Ontario Building Code as a means of egress.
- Needs to be in an appropriate place.
- Needs to be of appropriate material.
- Needs to be a high enough R-value.
- Needs to let in enough sunlight.
- Needs to be big enough for people to escape.

Why:

- Window needs to function as a fire escape, while being energy efficient.

When:

- March 27th, 2019

How:

- By researching and comparing windows available on the market. By reading the Ontario Building Code.

Result:

- Window needs to be no more than 42” from the floor. Window size 18” x 36”. Glass will be double pane insulated clear glass.

Aspect 2: Door

Objectives:

Needs to meet Ontario Building Code as a means of egress.
Needs to have a high enough R-value.
Needs to be tall enough for a 6’ 4” person.
Add to the aesthetic appeal of a house.

Why:

- Our prototype needs to improve the livability of the shed. Building Code and R-value improve livability.

When:

- March 27th, 2019

How:

- By researching various doors, and then comparing which of the options is the best at meeting building code, and at achieving the highest R-value.

Result:

- Door will be a 32” x 80” fiberglass exterior door.

Aspect 3: Siding

Objectives:

- 40 year longevity
- Protection against wind
- Protection against rain
- Protection against dust
- Prevention from wood rotting, mold growth, and other interior damage

Why:

- We need to ensure that the siding will perform well at protecting the walls of the shed from weather.
- The walls of the shed need to be protected from molding and rotting.

When:

- March 27th, 2019

How:

- Researching and comparing siding available on the market.

Result:

- Siding will be horizontal vinyl siding.

Aspect 4: Roof Shape and Size

Objectives:

- Sufficient size for solar panels
- Sufficient slope to shed water
- Low enough slope to make roofing easy
- Weather conditions? -- rain or snow
- Shape is suitable for harsh Canadian weather condition

Why:

- This prototype needs to ensure that the roof will hold up to harsh Canadian winters. It also must verify that the solar team will be accomodated and that the angle of the roof will be easy enough to shingle.

When:

- March 27th, 2019

How:

- Researching and comparing different styles of roofs to find the most efficient for solar panels, while keeping the slope to a minimum.

Result:

- Roof will be a gable roof, with a 4/12 slope.

Aspect 5: Roofing material

Objectives:

- 25 year longevity
- Able to withstand Canadian winter

Why:

- Improvement to the value and lifetime of the roof will improve the worth and longevity of our livable shed.

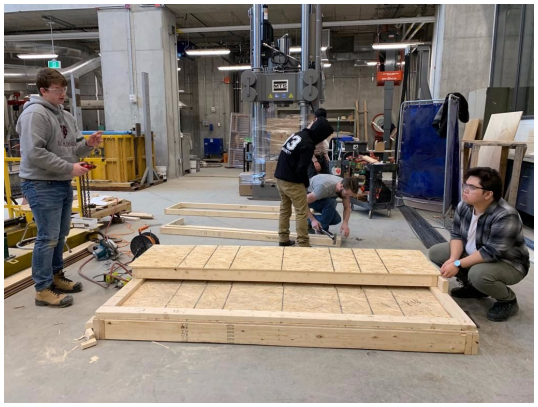
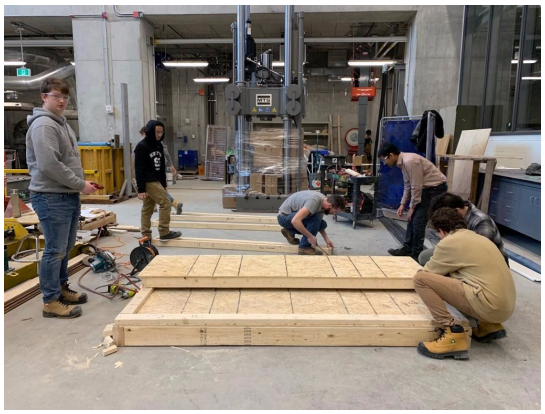
When:

- March 27th, 2019

How:

- Researching and comparing different roofing materials to find and use the most effective material for protection against harsh weather and extending the lifetime of the roof.

Result:

- Roofing material will be asphalt shingles.

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