

Deliverable C-Design Criteria and Target Specifications




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GNG1103-D03

02/02/2020

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Introduction

After having determined the needs of the client, our team has studied other greenhouse designs in order to do some benchmarking for our design specifications. This process is outlined in this document and concludes with weighted design specifications that comply with the needs of our client.

Benchmarking

Requirements	Sunshine Mt. Hood Garden House - Single Door	Palram Hybrid Lean-to-Grow House	Palram Glory Heavy Duty Greenhouse
Picture			
Cost (\$)	1319.00	938.00	2775.00
Base size (ft)	6 x 4	8 x 4	8 x 12
Water collection	None	Gutters	Gutters
Durable to all weather conditions	Yes (wood frame w/ polycarbonate walls)	Yes (aluminium frame w/ polycarbonate walls)	Yes (aluminum frame w/ polycarbonate walls)
Minimal labour and low-cost maintenance	Yes	No	No
Not harmful to wildlife	Yes	Yes	Yes
Electricity Generation	No	No	No
Heat Generation	No	No	No

Target Specifications

Functional requirements

Design specs	Weight (1-5)	Value	Verification method
Water collection and reuse	5	Yes	Analysis, test
Electricity generation	5	100 W	Analysis
Heat generation for cold months	3	10-30 °C	Test
Grow plants to feed up to 5 adults	5	5kg/week	Test

Constraints

Design specs	Weight (1-5)	Value	Verification method
Cost	2	< 500\$	Analysis
Must withstand weight of snow	4	> 20kg/m ²	Analysis
Transportable <ul style="list-style-type: none"> • Weight • Size 	4	Yes <ul style="list-style-type: none"> • < 100kg • < 32 ft² 	Analysis
Minimal labour	3	< 1 hour / week	Test
Should not be harmful to wildlife	2	< 2 cabbage dead	Analysis
Durable to extreme weather conditions (ice, rain, cold)	4	Yes	Test

Non-functional requirements

Design specs	Weight (1-5)	Value	Verification method
Educational for youth in the community	1	Yes	Test
Aesthetics	1	Yes	Test
Protection from wildlife	4	Yes	Test

Conclusion

Our thorough benchmarking has allowed us to establish guidelines for each design specification. We provided metrics for those specifications that required them, while others are qualitative and therefore could not be valued with metrics.