

## **The Robins**

### **Deliverable C - Benchmarking and Target Specifications**

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**Design Criteria**

Need	Criteria
The box has a way for the bats to land/climb into the box	Landing pad size (in) Grooved wood (in) - Netting would be difficult to maintain
The box has a method for counting the bats that's easy to install onto preexisting boxes	Accurate counting Minimal structure Weather-proof Battery Efficient
The box is easy to install	Weight (lb)
The box can stay at a good temperature for the bats	Insulated inside (in) Ventilation cracks (in) Size (in)
The box is low-maintenance	Fewer crevices for droppings to get into (in)
The box is low cost	Cost (\$)

**Benchmarking**

Bat Box →	<a href="#">Triple Chamber Bat House (Black)</a>	<a href="#">Cedar Bat Box</a>	<a href="#">Certified Bat House - Bat Conservation International</a>	<a href="#">The Nursery</a>
Specifications ↓				
Company	Big Bat Box	Canadian Tire	P&S country crafts	Canadian Bat Houses
Price	\$169	\$39.99	\$165	\$300
Size	27" x 15.5" x 6.5"	15.88" x 14.25" x 14.5"	L 35.5" x W 18" x D 2.5"	18.5" x 41" x 3.5"
# of chambers	3	1 (we think)	1 3/4" to 7/8" spaced	2
Type of wood	Cedar	Cedar	Pine	Cedar
Easy to install?	yes	no	depends	yes
Weight	unsure	3.7 lbs	22 lbs.	23 lbs

Bat capacity	200	20	50-150	300
Weather Protection	Black for insulation Ventilation	Waterproof stain Ventilation	roof shingles Waterproof stain sealed with exterior silicone caulk-glue	Glued seams Rubber exterior Black exterior
Cleaning	Open bottom No mesh	Open bottom No mesh Stainless steel Removable inserts	Plastic mesh landing :c Open bottom	Open bottom No mesh

**Benchmarking 2:****Legend: Bad Good Perfect**

Bat Box →	<a href="#">Triple Chamber Bat House (Black)</a>	<a href="#">Cedar Bat Box</a>	<a href="#">Certified Bat House - Bat Conservation International</a>	<a href="#">The Nursery</a>
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**Benchmarking 3:**

Bat Box →	Importance	<a href="#">Triple Chamber Bat House (Black)</a>	<a href="#">Cedar Bat Box</a>	<a href="#">Certified Bat House - Bat Conservation International</a>	<a href="#">The Nursery</a>
Specifications ↓					
Company		Big Bat Box	Canadian Tire	P&S country crafts	Canadian Bat Houses
Price	2	2	3	2	1
Size	3	1	2	3	1
# of chambers	2	1	3	3	2
Type of wood	3	3	3	1	3
Easy to install?	4	3	1	2	3
Weight	2	2	3	1	1
Bat capacity	5	1	2	3	1
Weather Protection	4	2	3	3	1
Cleaning	2	2	3	1	2
Total		17	23	19	15

**Target Specifications**

	Design Specifications	Relation (=, <, >, ≈)	Value	Units	Verification Method
	<b>Functional Requirements</b>				
	Must protect bats	=	yes	N/A	Research, Test
	Weather resistant	=	yes	N/A	Test
	Type of Wood	=	Cedar	N/A	Design

	Bat Capacity	$\approx$	50-150	N/A	Test, Research
	# of Chambers	=	1	N/A	Design
	Size	$\approx$	25.5x18 x2.5	in	Design
	<b>Constraints</b>				
	Budget	< / =	39.99	\$CAD	Estimate, Final Calculation
	Weight	$\approx$	3.7	lbs	Test
	<b>Non-Functional Requirements</b>				
	Easy Cleaning/Maintenance	=	yes	N/A	Test
	Installation Simplicity	=	yes	N/A	Test

### **Reflection**

The metrics that we will weigh as the most important for our bat boxes are weather resistance and insulation, cost, and easy cleaning and maintenance. These boxes will be used long term, and keeping bats safe and protected against the elements will be instrumental in promoting bat populations. Keeping the costs low will allow more customers to deploy this product, more affordably. Finally, keeping the boxes easy to maintain and clean will help workers keep these boxes operational long term, making it less of a burden to own and operate them.