

## Appendix D: Decision Matrices

**Table D1: Attachment Decision Matrix**

SET 1		Sketch 19		Sketch 20		Sketch 21	
Criteria	Weight (%)	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Safety	25%	40	10	60	15	30	7.5
Durable	17%	40	6.8	60	10.2	40	6.8
Quick Attachment	15%	20	3	50	7.5	60	9
Lightweight	18%	40	7.2	60	10.8	50	9
Stability	25%	50	12.5	20	5	60	15
<b>Total</b>	<b>100%</b>		<b>39.5</b>		<b>48.5</b>		<b>47.3</b>

SET 1		Sketch 22		Sketch 23		Sketch 24	
Criteria	Weight (%)	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Safety	25%	80	20	90	22.5	60	15
Durable	17%	50	8.5	60	10.2	70	11.9
Quick Attachment	15%	60	9	70	10.5	30	4.5
Lightweight	18%	60	10.8	50	9	60	10.8
Stability	25%	70	17.5	80	20	40	10
<b>Total</b>	<b>100%</b>		<b>65.8</b>		<b>72.2</b>		<b>52.2</b>

**Table D2: Pylon Decision Matrix**

SET 2		Sketch 10		Sketch 11		Sketch 12		Sketch 13		Sketch 14	
Criteria	Weight (%)	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Safety	23%	50	11.5	60	13.8	100	23	75	17.25	20	4.6
Durable	25%	20	5	50	12.5	90	22.5	60	15	30	7.5
Lightweight	20%	90	18	80	16	70	14	80	16	70	14
Adjustable	22%	80	17.6	20	4.4	70	15.4	95	20.9	85	18.7
Quick attachment	10%	80	8	50	5	60	6	70	7	55	5.5
<b>Total</b>	<b>100%</b>		<b>60.1</b>		<b>51.7</b>		<b>80.9</b>		<b>76.15</b>		<b>50.3</b>

SET 2		Sketch 15		Sketch 16		Sketch 17		Sketch 18	
Criteria	Weight (%)	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Safety	23%	40	9.2	90	20.7	100	23	20	4.6
Durable	25%	30	7.5	60	15	70	17.5	35	8.75
Lightweight	20%	90	18	90	18	90	18	70	14
Adjustable	22%	75	16.5	80	17.6	90	19.8	20	4.4
Quick attachment	10%	85	8.5	80	8	80	8	75	7.5
<b>Total</b>	<b>100%</b>		<b>59.7</b>		<b>79.3</b>		<b>86.3</b>		<b>39.25</b>

**Table D3: Leg Support Decision Matrix**

SET 3		Sketch 1		Sketch 2		Sketch 3		Sketch 4		Sketch 5	
Criteria	Weight (%)	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Safety	15%	60	9	90	13.5	100	15	30	4.5	40	6
Durable	15%	50	7.5	80	12	90	13.5	50	7.5	30	4.5
Lightweight	10%	80	8	70	7	40	4	100	10	80	8
Adjustable	19%	60	11.4	40	7.6	50	9.5	80	15.2	0	0
Quick Attachment	19%	40	7.6	80	15.2	90	17.1	70	13.3	30	5.7
Comfortable	22%	80	17.6	80	17.6	90	19.8	90	19.8	100	22
<b>Total</b>	<b>100%</b>		<b>61.1</b>		<b>72.9</b>		<b>78.9</b>		<b>70.3</b>		<b>46.2</b>

SET 3		Sketch 6		Sketch 7		Sketch 8		Sketch 9	
Criteria	Weight (%)	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Safety	15%	40	6	80	12	80	12	20	3
Durable	15%	60	9	75	11.25	80	12	30	4.5
Lightweight	10%	90	9	25	2.5	30	3	10	1
Adjustable	19%	40	7.6	90	17.1	75	14.25	85	16.15
Quick Attachment	19%	80	15.2	85	16.15	85	16.15	50	9.5
Comfortable	22%	70	15.4	70	15.4	90	19.8	80	17.6
<b>Total</b>	<b>100%</b>		<b>62.2</b>		<b>74.4</b>		<b>77.2</b>		<b>51.75</b>

**Table D4: Final Designs Decision Matrix**

SET 1		Final Sketch 1		Final Sketch 2		Final Sketch 3		Final Sketch 4		Final Sketch 5	
Criteria	Weight (%)	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Safety	17%	80	13.6	70	11.9	80	13.6	60	10.2	80	13.6
Durable	15%	85	12.75	75	11.25	90	13.5	70	10.5	75	11.25
Quick Attachment	10%	60	6	70	7	70	7	70	7	70	7
Lightweight	16%	30	4.8	50	8	40	6.4	70	11.2	70	11.2
Stable	13%	70	9.1	50	6.5	75	9.75	50	6.5	70	9.1
Adjustable	14%	90	12.6	75	10.5	80	11.2	80	11.2	75	10.5
Comfortable	15%	80	12	60	9	90	13.5	90	13.5	75	11.25
<b>Total</b>	<b>100%</b>		<b>70.85</b>		<b>64.15</b>		<b>74.95</b>		<b>70.1</b>		<b>73.9</b>

SET 1		Final Sketch 6		Final Sketch 7		Final Sketch 8		Final Sketch 9		Final Sketch 10	
Criteria	Weight (%)	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Safety	17%	40	6.8	25	4.25	60	10.2	60	10.2	70	11.9
Durable	15%	45	6.75	30	4.5	70	10.5	55	8.25	75	11.25
Quick Attachment	10%	10	1	55	5.5	40	4	40	4	50	5
Lightweight	16%	80	12.8	50	8	70	11.2	10	1.6	25	4
Stable	13%	30	3.9	20	2.6	50	6.5	60	7.8	90	11.7
Adjustable	14%	55	7.7	40	5.6	50	7	70	9.8	45	6.3
Comfortable	15%	60	9	45	6.75	60	9	80	12	70	10.5
<b>Total</b>	<b>100%</b>		<b>47.95</b>		<b>37.2</b>		<b>58.4</b>		<b>53.65</b>		<b>60.65</b>