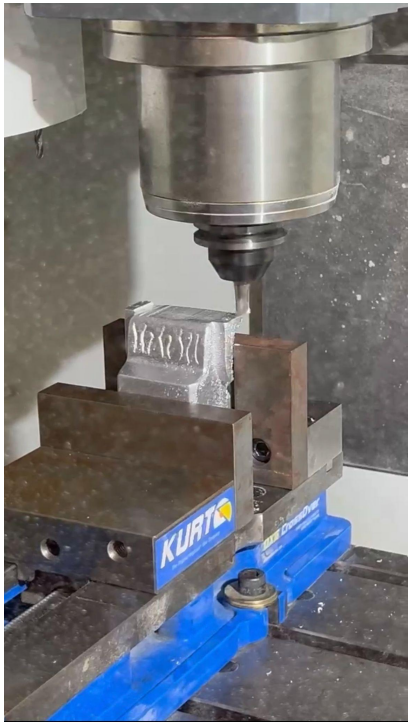
Multi-Process Fabricated Vehicle Model

Green Sand Casting

Green sand casting of a casting aluminum alloy used to form the primary vehicle body.
Personally performed mold preparation and molten metal pour under shop safety protocols.

CNC End Milling for Surface Finish

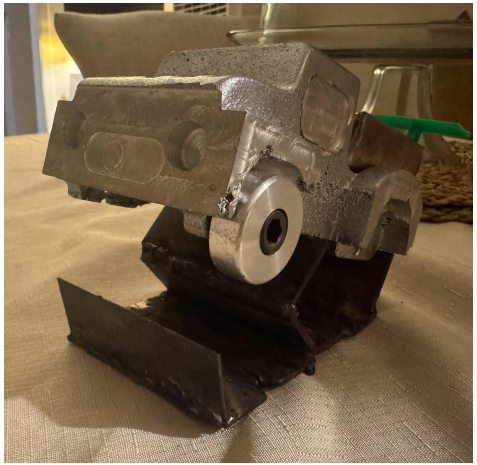


Used 500 RPM for first pass and 1000 RPM for second pass for a smooth surface finish.

Performed drilling operations.

Used auto tool change commands to switch from end mill to center drill (200 RPM) and to drill bit (250 RPM)

Final Model



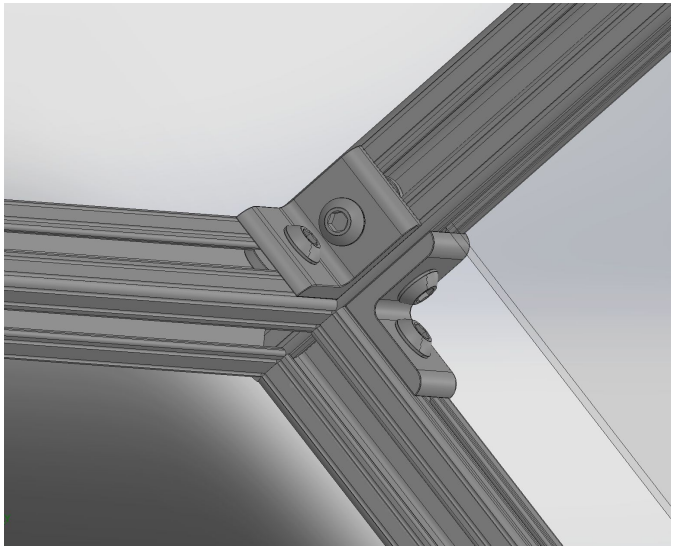
Trunk was done using sheet metal forming, spot welding, and riveting.

Low-carbon steel stand fabricated using stick welding (SMAW)

Snap-fit spoiler modeled in SolidWorks and additively manufactured using FDM.

CNC Machine Safety Enclosure | CAD Design

Full Assembly of Safety Cage



Cut List for Acrylic Sheets and Aluminum Extrusions

CutList Optimizer

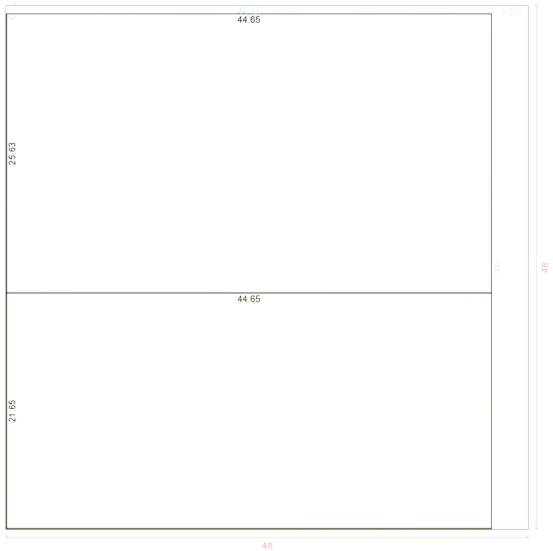
Used stock sheets	2
Total used area	4186.48 91%
Total wasted area	421.52 9%
Total cuts	8
Total cut length	306.21
Cut / blade / kerf thickness	0

Panels 21.63×25.63 x2 44.65×21.65 x2 44.65×25.63 x1
Stock sheets 48×48 x2

Stock sheet	48×48
Used area	2111.05 92%
Wasted area	192.95 8%
Cuts	3
Cut length	137.3
Panels	2
Wasted panels	2

Panel	**Qty**
21.65×44.65	1
25.63×44.65	1

#	Panel	Cut	Result
1	48×48	x=44.65	
2	48×44.65	y=21.65	21.65×4
3	26.35×44.65	y=25.63	25.63×4

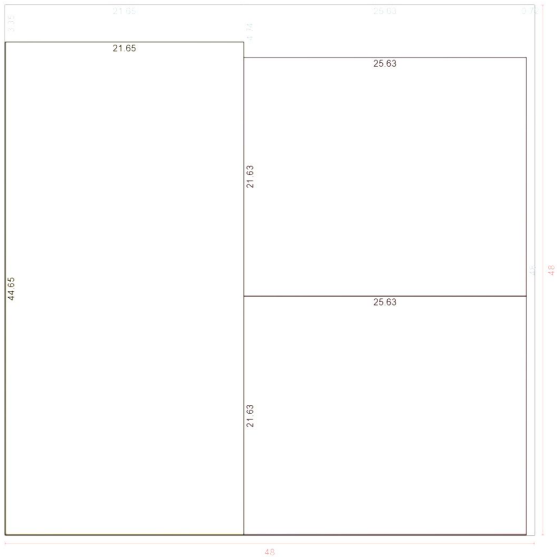


CutList Optimizer

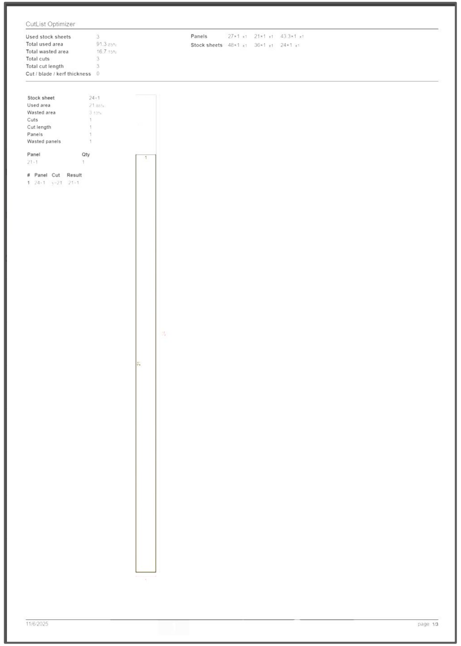
Stock sheet	48×48
Used area	2075.43 90%
Wasted area	228.57 10%
Cuts	5
Cut length	168.91
Panels	3
Wasted panels	3

Panel	**Qty**
21.63×25.63	2
44.65×21.65	1

#	Panel	Cut	Result
1	48×48	x=21.65	
2	48×21.65	y=44.65	44.65×2
3	48×26.35	x=25.63	
4	48×25.63	y=21.63	21.63×2
5	26.37×25.63	y=21.63	21.63×2



Cut List Continued



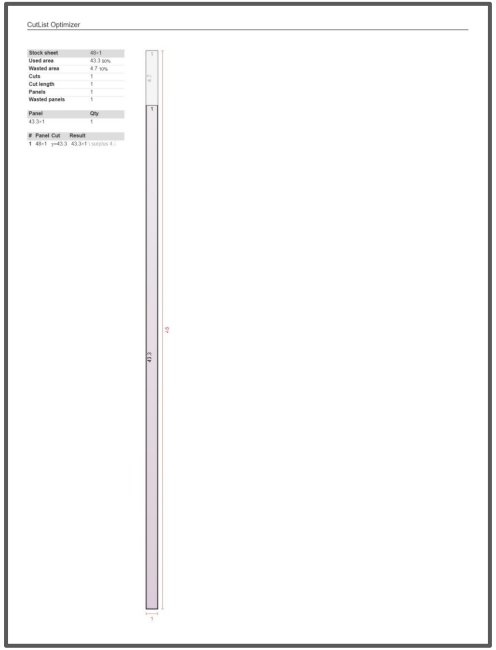
CutList Optimizer

Used stock sheets	3	Panels	27×1 x1	21×1 x1	43.3×1 x1
Total used area	91.3 85%	Stock sheets	48×1 x1	36×1 x1	24×1 x1
Total wasted area	16.7 15%				
Total cuts	3				
Total cut length	3				
Cut / blade / kerf thickness	0				

Stock sheet	24×1
Used area	21 88%
Wasted area	3 13%
Cuts	1
Cut length	1
Panels	1
Wasted panels	1

Panel	Qty
21×1	1

#	Panel	Cut	Result
1	24×1	y=21	21×1

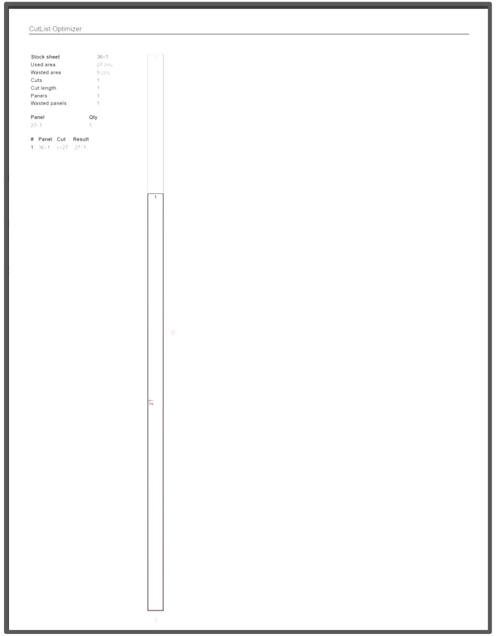


CutList Optimizer

Stock sheet	48×1
Used area	43.3 90%
Wasted area	4.7 10%
Cuts	1
Cut length	1
Panels	1
Wasted panels	1

Panel	Qty
43.3×1	1

#	Panel	Cut	Result
1	48×1	y=43.3	43.3×1 \ surplus 4.7



CutList Optimizer

Stock sheet	36×1
Used area	27 75%
Wasted area	9 25%
Cuts	1
Cut length	1
Panels	1
Wasted panels	1

Panel	Qty
27×1	1

#	Panel	Cut	Result
1	36×1	y=27	27×1