Internal Code of Engineering Practice - Project Raptor

Document ID: ENG-RPT-011

Author: Dr. Amara Nwosu

Approvers: Jason Carter, Elena Vasquez

Date: 2025-05-24

1. Purpose

This document outlines the foundational engineering principles and company standards to be followed throughout the lifecycle of Project Raptor. It applies to all internal teams, supplier collaborators, and cross-functional stakeholders.

2. Core Engineering Principles

- Safety by Design

- Documentation First

- Simplicity in Service

- Interoperability

3. Structural & Material Standards

Chassis Construction: Steel monocoque with aluminum crossbeams

Door Skin Material: Aluminum 5052-H36

Minimum Panel Thickness: 1.5 mm

Battery Enclosure Material: Magnesium Alloy

Roof Structure: Stamped HSLA Steel with bonded foam

4. Design & Fabrication Practices

- Minimum Tool Clearance: 60 mm

- Surface Coating: Zinc-nickel for all exposed metal

- Fastener Torque Certification: Required for ISO 898-1 Class 8.8+

5. Supplier & Sourcing Expectations

- Sustainability: 25% recycled content minimum

- Standardization: ISO 9001:2015, dual-sourcing required

- Lead Time Buffer: 6-week inland logistics buffer

6. Compliance and Regulatory Alignment

- ISO 26262 ASIL-C for safety-critical

- FMVSS 208, 214, 301, 305 for EV systems

- FMVSS 302 and ISO 4892-3 for interior components

7. Human Factors & Ergonomics

- Reachability for 5th percentile female to 95th percentile male

- Max control activation force: 30 N

- Minimum rear legroom: 35 inches

8. Version Control and Change Log

Rev A | 2025-05-24 | Dr. A. Nwosu | Initial release

9. References

FRD-RPT-001 | Functional Requirements Document - Project Raptor | 1.0

DOC-RPT-MECH-002 | Mechanical Technical Specification - Project Raptor | Rev A

RFQ-RPT-005 | Request for Quote - Interior Components | Rev B

CMP-RPT-003 | Compliance Matrix - North American Safety Standards | Rev A