

Fourth Factor Engineering, LLC

Statement of Capabilities

(Unclassified)

*A Minnesota-based, Woman-Owned Small Business (WOSB)
Systems Engineering and Specialty Engineering Company*

Company Profile

- Minnesota-Based Woman Owned Small Business (WOSB)
- Structured as a Limited Liability Corporation
- Incorporated: March 2010
- Company Size: 2 co-owners and 5 independent consultants
 - Additional independent contractors at disposal of Fourth Factor Engineering to provide services
- Federal and Government Identifications:
 - DUNS Number: 966635315
 - Cage Code: 68kv9
 - Federal Tax ID: 27-2120951
 - MN Tax ID: 1518540
 - NAICS Codes: 541330, 541380, 541614, 541620, 541690, 541711, 541712, 611430
 - SIC Code: 8711 or Group 87
- 30+ Years Experience in Hardware and Software Safety, Systems Engineering, and Specialty Engineering

Company Vision

- **Mission Statement**
 - Fourth Factor Engineering, LLC strives to provide its customers with superior engineering analysis and processes to enhance an overall design and to ensure a design that is compliant with all applicable design, local, state, and federal requirements
- **Philosophy**
 - FFE LLC values the customer's commitment to producing an operational, safe, useable, and reliable product that meets the developed requirements. We are dedicated to assisting our customers in developing an enhanced Systems Engineering program that results in a better product for the end user
- **Objectives**
 - Promote an early insertion of engineering principles that addresses a designs' entire life-cycle into the design to prevent "band-aid" fixes down the road
 - Provide sound engineering analysis to make educated design decisions
 - Develop a proactive approach to Systems Engineering administration
 - Deliver sound processes and techniques for a successful Systems Engineering program
 - Train and empower the employees to assess a system or product for risk during development

"Early involvement is the key to a successful Systems Engineering program."

Company Certifications

- Current Certifications
 - SBA self-certified WOSB
 - Minnesota State, Targeted Group/Economically Disadvantaged (TG/ED) certification
 - Women's Business Enterprise National Council (WBENC) certification
 - Member of Association of Women Contractors (State of Minnesota)
- Pending Certifications
 - Minnesota State, Small Business Central CERT certification
 - Disadvantaged Business Enterprise certification

Program/Project Experience

Program	Customer	Partners
Crusader (Artillery and Resupply Systems)	Army	General Dynamics, Teledyne Vehicle Systems, United Defense
Light-Towed Howitzer	Army	United Defense
Future Combat System (Cannon, Mortar, Infantry Carrier)	Army	Boeing, SAIC, General Dynamics, United Defense/BAE Systems
Ground Comabt Vehicle	Army	BAR Systems
Paladin PIM Upgrades	Army	United Defense/BAE Systems
Remote Guardian System	Marine Corps	United Defense/BAE Systems
Vehicle Emergency Egress (VEE) Windows	Army, Marine Corps	United Defense/BAE Systems
Excalibur	Army, Navy	Rockwell Collins, BAE Systems, BOFORS
Long Range Land Attack Projectile	Navy	Alliant Techsystems, BAE Systems, Lockheed Martin
25mm Ammunition (Individual Automatic Airburst System)	Army	Alliant Techsystems, Heckler and Koch, L3 Brasheer
BONUS Projectile	Army	BOFORS
Projectile Guidance Kit	Army	Rockwell Collins, BAE Systems, BOFORS
Mortar Guidance Kit	Army	Alliant Techsystems
Tactical Munition Dispenser	Marine Corps	Alliant Techsystems
Precision Guided Mortar Munition	Army	ARDEC
Modular Artillery Charge System	Army	ARDEC
Common Remote Operated Weapon System	Army	BAE Systems
Mobile Tactical High Energy Laser	Marine Corps	Northrup Grumman, United Defense
High Energy Laser	Army	BAE Systems
QuickStow™	Army	BAE Systems
Advanced Gun System	Navy	United Defense/BAE Systems, Raytheon
Mk 45 Naval Weapon System	Navy	United Defense/BAE Systems
NASA Attitude Control Motor	NASA	NASA, Alliant Techsystems
Ultra-Light Vehicle	Hardwire, LLC	
Spider Mine System	Marin Corps/Army	Alliant Techsystems/Textron
Accelerated Improved Interceptor Initiative Lethal Mechanism		Alliant Techsystems
Switchblade Unmanned Aerial Vehicle	Air Force/Army	Alliant Techsystems
BioTrak Air Monitoring System	TSI, Inc.	
Material Safety Data Sheet Database Development	Science Museum of Minnesota	

Note: Blue Text = Current Contracts

Listing is a subset of programs worked and is provide as an example.

Core Services

- Engineering Services
 - Systems Engineering
 - Specialty Engineering
 - Test Engineering
- Program Management
- Process Implementation
- Risk Reduction Initiatives
- Follow-On Assistance

Engineering Services 'At-A-Glance'

- Systems Engineering
 - Requirements Development, Architecture Development, Requirements Verification, etc.
- Reliability
 - Failure Modes & Effects Analysis, FRACAS
 - Physics of Failure , Root Cause Analysis
- Maintainability
 - Mean Time Between Failures, Mean Time To Repair
- Testability
 - Test Point Assessment, Ambiguity Group Analysis, etc.
- Criticality Assessment
 - Fault Tree Analysis, Safety Critical Item Identification, etc.
- Safety Engineering
 - Safety Analyses, Risk Assessment, Safety Assessment Reports, Safety Release, Test Safety, Software Safety
- Test
 - Test Requirements, Test Plans, Test Reports, Site Development, Conduct Test, etc.
- Environmental Compliance
 - TSCA, RCRA, HMMP
- Human Factors
 - Graphic User Interface, Man/Machine Interface, Ergonomics, Task Analysis, Human Modeling
- Logistics
 - LRU Identification, Maintenance / Operator Task Analysis, Technical Manual Development (-10, -23, DMWR, NMWR), LSAR, Life-cycle Cost Analysis, LORA
- Training
 - Warnings/Cautions/Alerts, Safety Signage & Labels Development, Engineering Training, Soldier Training

Program Management

- Develop applicable program plans and define/interpret program requirements
- Provide program reporting and design review support
- Provide program metrics
- Proposal support and development
- Support program level analyses and review boards

Process Implementation

- Initiate Systems Engineering (including Specialty and Test Engineering) program for companies that do not have dedicated processes
 - Develop Systems Engineering Program from the “Ground Up”
 - Program plan development & implementation
 - Risk assessment tools
 - Requirement specification assistance
 - Interpretation of customer specs
 - Document generation
 - Requirements development and allocation
 - Provide training
 - Audit programs for initial and continued compliance

Risk Reduction Initiatives

- Early design influence increases awareness and the likelihood that risk mitigations will be implemented
- Value added during design provides high return on investment in the long run
 - Less rework during design, test, and integration
 - Lessens legal implications in the event of an accident
 - Less warranty claims and/or recalls after production
- Proactive approach indicates a willingness to provide the safest, most reliable product possible (helps to reduce corporate liability in legal battles)

Follow-On Assistance

- Applies to both 'Ground-Up' & Enhancement services
- Provide follow-on consulting
 - Ensure customer is realizing benefit from product enhancements and process improvements
 - Ensure customer capitalizing on ROI potential from implemented processes and improvements
- Provide additional features to developed processes and products that can be added at any time

Owner Credentials – Liz Becker (President)

- 17 Years in System Safety, Software Safety, Human Factors, Test, and RAM-T Engineering
- Certified Safety Professional
- ASSE Certified Safety Professional
- Expert in Specification Development
- Distinguished Toastmaster
- Hazardous Voltage Training
- Program Management Training
- Earned value development and metrics tracking
- Experienced analyst in multiple disciplines in many different design areas
- Familiar with multiple engineering specification sets (military, ARP, SAE, OSHA, NASA, etc.)
- Multiple toolsets: RELEX, Hazard Tracking Systems, Systems Engineering Databases, Fault Tree Software (CAFTA, Isograph, etc.), Microsoft Suite

Owner Credentials – Dave Rooks (Vice President)

- 16 Years in System Safety, Test, and RAM-T Engineering
- Certified Ammunition Handler
- FAA Certified Airframe & Powerplant Technician
- 14 years F-16 Crew Chief - ND Air National Guard
- Successful in obtaining Safety Release for US soldier participation in early prototype testing
- Reliability and Maintainability Experience
- Associate Degree in Project Management
- Experienced analyst in multiple disciplines in many different design areas
- Multiple toolsets: RELEX, Hazard Tracking Systems, Systems Engineering Databases, Fault Tree Software (CAFTA, Isograph, etc.), Microsoft Suite

Independent Contractor Credentials and Certifications

- Credentials
 - All current contractors have a minimum of 15 years of experience within the defense, aviation, or commercial industries
 - Multiple toolsets: RELEX, Reliasoft, Isograph, Jack Modeling Tool, COMPASS, SLIC-2B, Hazard Tracking Systems, Systems Engineering Databases, Microsoft Suite, etc.
- Certifications
 - Certified Ammunition Handler
 - Certified Range Safety Officer
 - Qualified Arms Operators (small arms to 155mm weapons)

Contact Information

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