



CAPABILITIES STATEMENT

ABOUT PREISSNER ENGINEERING & CONSULTING, LLC

Preissner Engineering & Consulting, LLC is an Ann Arbor, Michigan-based engineering consulting company. We have expertise in mechanical systems and structural design, advanced finite element analysis (FEA), 3D computer aided design (CAD), computational fluid dynamics (CFD), and test data acquisition (DAQ). We provide innovative analysis and design solutions to companies and organizations in high-tech industries including defense, aerospace, transportation, energy, infrastructure, and others.

Our experience with FEA includes everything from basic modeling and static analysis to complex assemblies with dynamic, vibration, contact, nonlinear, and fatigue effects. We can analyze metallic, non-metallic, and composite materials. We use our data acquisition system to verify physical components and validate our analyses. With CFD we are capable of a full range of analysis types, up to and including transient, compressible, and multi-phase flow with all types of boundary conditions, heat transfer, and both internal and external flow paths. In 3D design we use our CAD tools from the beginning of a project in exploring the design space, until the end for producing finished drawings for communication and production.

PEC can tackle projects of any size, from initial R&D explorations to multi-company, multi-agency systems. Companies use our services to develop new products, improve current designs, and assess legacy system performance and/or failure. We embrace a philosophy of total quality as well as quality improvement in all aspects of our business. **PEC is NIST 800-171 compliant.**

GENERAL INFORMATION

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|--------------------------|---|-------------------------|----------------|
| Registered Company Name: | Preissner Engineering & Consulting, LLC | DUNS Number: | 031100668 |
| Key Contact: | Eric Preissner | CAGE Code | 62PH7 |
| Office Telephone: | 734.834.0244 | Year Incorporated: | 2010 |
| Web Site: | www.pec-llc.com | State of Incorporation: | Michigan |
| E-mail Address: | eric.preissner@pec-llc.com | Number of Employees: | 4 (3 PE) |
| | | SBA classification: | Small business |

NAICS CODES

- 541330: Engineering Consulting Services
 - Engineering Design Services
 - Engineering Services
- 541715: Engineering Research and Development Services

AREAS OF EXPERTISE

Eric Preissner is the principal at PEC:

- B.S. in Aeronautical and Astronautical Engineering from the University of Illinois, Urbana-Champaign
- M.S. and Ph.D. in Mechanical Engineering from the University of Delaware
- Registered Professional Engineer in the state of Michigan
- Over 20 years of experience in aerospace, research, design, analysis, and manufacturing

Company areas of expertise include:

- Design
 - Concept development
 - Complex specification compliance
 - Concept maturation
 - Design for manufacturing
 - Test plan development and product testing support
- Finite element analysis (FEA)
 - Modeling of complex components and/or assemblies, including welded, bolted, and other joints
 - Basic static strength analysis
 - Normal modes (natural frequency and buckling) analysis
 - Dynamic analyses including time and frequency domain

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Page 1 of 2 ♦ © 2021 Preissner Engineering & Consulting, LLC

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- Vibration analyses including harmonic, random, and shock
- Nonlinear deformations
- Nonlinear materials
- 3D CAD modeling
 - Solid modeling
 - 2D Drawings
- Compliance with DoD
 - MIL-STD-810 (Test Methods)
 - MIL-STD-209 (Lift & Tie Down)
- Design improvement
 - Weight reduction
 - Optimization
 - Trade studies
- Fatigue analysis
 - Duty cycle generation
- Detailed design reviews, documentation, reporting, and presentation
- Contact
- Superelements
- Metallic and composite materials
- Thermal analysis
- Mass properties
- Bills of material
- MIL-STD-1791 (Aerial Delivery)
- Air transport certification (ATTLA)
- R&D projects
- Forensic studies
- Damage, durability, and life

TOOLS

- Finite Element Analysis: NX Nastran (Siemens)
- Pre- / Post-processing: Femap (Siemens)
- 3D CAD: SolidWorks (DSS) – Exchange data in native and other formats (STP, IGES, etc.)
- CFD: ANSYS Fluent
- Test DAQ: HiTechniques Echelon; displacement, strain, acceleration, temperature sensors.

CUSTOMER ASSOCIATIONS

- Nelson Manufacturing (Ottawa, OH)
- United Launch Alliance (Centennial, CO)
- Boeing Satellite (Los Angeles, CA)
- Orbital/ATK (Magna, UT)
- Harris Corp. (Rochester, NY)
- ASE Holdings, Inc. (St. Paul, MN)
- Ground Test Solutions (Dimondale, MI)
- Navitas ASG (Ann Arbor, MI)
- Georgia Tech Research Institute (Smyrna, GA)
- Lockheed Martin (Cape Canaveral, FL)
- Engineered Mobile Solutions (Batavia, OH)
- Sigma Space Corp (Greenbelt, MD)
- Aernnova Engineering US (Ann Arbor, MI)
- Phoenix Composite Solutions (Oscoda, MI)
- Ideal Fabricators (Livonia, MI)
- A123 Systems (Livonia, MI)
- BCN Technical Services, a Division of Schuler (Hastings, MI)
- Sentry Insurance (Stevens Point, WI)
- Kawasaki Rail Car (Yonkers, NY)

CASE STUDY

James Webb Space Telescope – Transportation Assembly: The James Webb Space Telescope is one of NASA's prominent programs to explore the origins of our universe. The Transportation Assembly (TA) is a unique mobile environmental protection unit that carries the JWST around the country during assembly and testing and to its final launch site in French Guiana.

PEC worked as a subcontractor to Nelson Manufacturing and helped lead the team to design, analyze, manufacture, and test the TA. We directed the design team on key technical decisions, performed complex assembly FEA (static and shock), ensured a manufacturable design, and developed the test plan. As the unit will be transported on a specialized C-5 aircraft, we also led the air transport certification effort.

