



Job Title: Senior Stress Engineer

Reports To: Engineering Manager

Summary of Position:

Responsible for various multi-disciplinary engineering tasks related to of aircraft cargo loading, cargo handling and aerial delivery systems with emphasis on structural integrity, performance, durability, and airworthiness of the product.

Duties and Responsibilities:

- Selects appropriate methods, techniques, and evaluation criteria to accomplish complex engineering tasks in creative and effective ways, developing standards and guidance for diverse engineering activities.
- Is consulted extensively by associates and others as a recognized authority within the field.
- Approach to problem solving balances technical product, cost, and schedule.
- Exercise latitude and creativity in determining technical objectives of assignments.
- Makes decisions and recommendations that are recognized as authoritative.
- Support design of aircraft cargo loading, cargo handling and aerial delivery systems with emphasis on structural integrity, performance, durability, and airworthiness of the product to ensure flight safety and Part 25 certification.
- Perform classical static stress, fatigue, and damage tolerance analyses.
- Prepare and review structural analysis through classic hand-calculations methods and FEA.
- Develop and document detailed structural analyses in support of drawing release or repairs including, but not limited to, free body diagrams, internal or external loading, shear and moment diagrams, and calculation of internal stresses.
- Evaluates product structural nonconformances and provide engineering dispositions.
- Control and document material properties, failure modes and mechanical properties variation
- Develops and implements product/process improvements.
- Provides design phase subject matter expertise by supporting integrated product teams and participating in design reviews.
- Assesses and resolves product/process issues through the product lifecycle.
- Establish and manage structural requirements for aircraft cargo loading, cargo handling and aerial delivery systems.
- Prepare, conduct, analyze the results and document structural tests of cargo handling and aerial delivery control systems.
- Develops and implements product/process improvements.
- Participate in preparing proposal and other marketing documents to meet objective of the department.
- Prepare and review certification document in accordance with customer specification or Certification Authority requirement.



Duties and Responsibilities (Continued):

- Work independently to gather data and input on the development of original designs or adaptations of existing designs after having been given general instructions regarding purpose and parameters.
- Create, review, and approve of technical documents reports covering the following topics:
 - Stress Analysis
 - Fatigue and Damage Tolerance Analysis
 - Interface Loads
 - Applied Loads
 - Discrete Source Damage / Missing Restraint Analysis
 - Weight and Balance
 - Environmental performance verification and qualification per DO-160, MIL-STD-810
 - Dynamic and Thermal Analyses
 - Root Cause Analysis and Corrective Action Requests (RCCA)
 - Detail and Assembly Drawings per ANSI Y14.100, including advancing the use of Model
 - Change Requests and Change Orders
- All other duties as assigned.

Core Competencies:

- Commitment to company values and ethics.
- Dependability: personally responsible, completes work in a timely manner, and performs tasks accurately.
- Motivation: must maintain a positive attitude and strong work energy.
- Advanced computer proficiency
- Analytical skills: must be able to gather information and use data to determine cause and effect for complex problem solving.
- Communication: excellent interpersonal and oral and written communication skills
- Independent: must have the ability to carry out and follow through on tasks with minimal supervision.
- Problem Solving: ability to develop and implement new ideas to improve processes.
- Must maintain strict confidentiality and professionalism.
- Organization: very detail oriented and always comes prepared
- Time management: ability to organize and manage multiple priorities and effectively deal with tight deadlines and pressure situations.

Qualifications:

To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.



Education and/or Experience:

- Minimum: Bachelor of Science degree (B.S.) in Mechanical or Aeronautical/Aerospace Engineering from a four-year college or university.
- Preferred: Master of Science degree (M.S.) in Mechanical or Aeronautical/Aerospace Engineering or related field of study.
- Minimum of 7 years of experience working in the aerospace product development environment.
- Advanced knowledge of airframe and aircraft mechanical systems design and stress analysis.
- Advanced knowledge of static stress, damage tolerance, fracture mechanics and fatigue.
- Advanced knowledge of free body diagrams, kinematics, and dynamic loads.
- Advanced knowledge of metallic material properties as well as material testing and characterization per industry standards. Composite material experience is an asset.
- Advanced knowledge of Finite Element Analysis (FEA).
- Advanced experience with certification of structural components for aerospace applications.
- Advanced experience with Ansys Workbench and Patran/Nastran.
- Experience with structural testing of structural components for aerospace applications.
- Experience in the troubleshooting of mechanisms in the context of the development cycle.
- Experience in the creation, publication, and revision of engineering drawings in accordance with ANSY Y14.100 standards.
- Experience with SolidWorks or equivalent, MathCAD and AutoCAD software applications.

Physical Demands/Work Environment:

The physical demands and work environment characteristics described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

- Maneuvers in, around, under, and about factory and/or laboratory equipment on a regular and continuous basis.
- Must be able to lift and carry up to 40 pounds and comply with OSHA standards.

While performing the duties of this job, the employee may be regularly required to sit, stand, bend, reach and move about the facility. The environment characteristic for this position is an office setting. Candidates should be able to adapt to a traditional business environment.

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