Cassius Ellingboe

Aerospace Structures Engineer

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SUMMARY

Aerospace structures engineer with 7 years in stress analysis of metallic and composite airframe components for commercial and business jets. Runs FEA in Femap/NASTRAN and HyperMesh, writes certification stress reports, and correlates analysis to test. Led analysis for a composite flap support that saved 14 lb per shipset and passed static test on the first article.

EXPERIENCE

Senior Stress Engineer — Prairie Aerostructures

Wichita, KS · Mar 2021 – Present

- Lead stress analysis for a composite flap support assembly, coordinating 3 analysts and closing 240+ margins of safety for certification.
- Cut the assembly's weight by 14 lb per shipset by resizing ply drops and fastener patterns from FEA results, without losing positive margins.
- Correlated a NASTRAN model to static test strain gauges within 6%, supporting first-article test success at 150% of limit load.
- Dispositioned 120+ manufacturing nonconformances a year with repair analyses, keeping average MRB turnaround under 3 days.

Stress Engineer — Heartland Aviation Components

Wichita, KS · Jun 2018 – Feb 2021

- Performed detail stress analysis of 60+ aluminum and titanium fittings, frames and brackets using hand calcs and Femap/NASTRAN.
- Wrote 15 stress reports submitted to the customer and FAA designee, with no rework requests on 12 of them.
- Built an Excel and Python tool for bolted joint analysis that cut joint check time from 2 hours to 20 minutes.

SKILLS

Analysis: Static and fatigue stress, damage tolerance, composite laminate analysis, bolted and bonded joints

Tools: Femap/NASTRAN, HyperMesh, Abaqus basics, HyperSizer, CATIA V5, Python, MATLAB

Certification: FAR Part 25 structures, stress reports, test plans and correlation, MRB dispositions

Materials: Carbon/epoxy composites, aluminum 2024/7075, Ti-6Al-4V, fastener allowables (MMPDS)

CERTIFICATIONS

Engineer in Training (EIT), Kansas, 2018

EDUCATION

M.S. Aerospace Engineering, Wichita State University, 2021

B.S. Aerospace Engineering, Wichita State University, 2018

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