

Russell Whitaker, PE

Forensic Engineering Expertise

Mechanical Failure

Investigation of losses to determine root cause of mechanical failure including industrial accidents, explosions, appliances, HVAC equipment, plumbing, fireplaces and auxiliary heating appliances, fire suppression systems, and vehicle collision analysis.

Qualifications & Training

Residential Natural Gas Systems, IAAI, CFITrainer.net, January 2024
Introduction to Appliances, IAAI, CFITrainer.net, January 2024
Investigating Natural Gas System, IAAI, CFITrainer.net, January 2024
Fundamentals of Residential Building Construction, IAAI, CFITrainer.net, January 2024
Residential Electrical Systems, IAAI, CFITrainer.net, January 2024
NFPA 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems Series Online Training, 2023
Injuries, Anatomy, Biomechanics, & Federal Regulation, SAE International, August 2022
Bosch® CDR Tool Technician Training by IPTM, June 2022
Vehicle Crash Reconstruction: Principles and Technology, SAE International, May 2022
Fundamentals of HVAC, University of Wisconsin-Madison, March 2022
Traffic Crash Investigation I, Northwestern University, December 2021
Lithium-Ion Battery Fires, IAAI, CFITrainer.net, June 2021
Charting Your Career Path In Fire Investigation, IAAI, CFITrainer.net, June 2021
An Analysis of The Station Nightclub Fire, June 2021
Critical Evaluation and Testing of Commonly Reported Accidental Causes, IAAI, CFITrainer.net, June 2021
Charleston Sofa Super Store Fire, IAAI, CFITrainer.net, June 2021
The Deposition Part 1: Format, Content, and Preparation, IAAI, CFITrainer.net, June 2021
The Deposition Part 2: Questioning Tactics and Effective Responses, IAAI, CFITrainer.net, June 2021
Arc Mapping Basics, IAAI, CFITrainer.net, June 2021
Effective Investigation and Testimony, IAAI, CFITrainer.net, June 2021
Understanding Fire Through the Candle Experiments, IAAI, CFITrainer.net, June 2021
Fire Chemistry, IAAI, CFITrainer.net, June 2021
Thermometry, Heat, and Heat Transfer, IAAI, CFITrainer.net, June 2021
Explosion Dynamics, IAAI, CFITrainer.net, June 2021
American Society for Quality Control; Six Sigma Black Belt, May 2006 – May 2009
Twenty years of experience using Pro/Engineer (Creo) Software including
Mechanica Finite Element Analysis
Five years of experience using Solidworks Software including Solidworks Simulation finite element analysis package
American Society for Quality Control; Certified Quality Engineer, Dec. 1995 – May 2009
American Society for Quality Control; Certified Reliability Engineer, Mar. 1996 – May 2009

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This CV is not a solicitation for services and is provided as information only. Retention of this expert can only be obtained through a mutually agreed upon Letter of Engagement.

Education

Bachelor of Science in Mechanical Engineering
Western Michigan University, Kalamazoo, MI
12/89

Licenses & Certifications

PE - Professional Engineer
Licensed by the State of Michigan – Number 6201041056
Licensed by the State of Florida – Number PE96190
Certified Remote Pilot (Small Unmanned Aircraft Systems)
EPA (Environmental Protection Agency) – Universal
Certified by ESCO Institute – Certification No: 1429228700410

Employment History

Forensic Engineer
Nederveld, Grand Rapids, MI
September 2020 – Present
Investigation of losses to determine root cause of mechanical failure including industrial accidents, explosions, appliances, HVAC equipment, plumbing, water intrusion, fireplaces and auxiliary heating appliances, fire suppression systems, vehicle fire and vehicle collision analysis.

Mechanical Engineering Manager
Medallion Instrumentation Systems, Spring Lake, MI
2017 – 2020
Duties included leading a team of engineers and designers developing electro-mechanical devices. Manage the Medallion test lab and test lab personnel. Perform simulations and stress analysis to predict the performance of designs. Responsible for prototype builds, performance testing, reliability test plans and data collection. Responsible for test programs, test data analysis, and recording results in detailed reports. Create and review specifications, drawings and bills of materials necessary to fully document new products for full-scale production. Support qualification testing and transition of newly developed products into production. Support DFM, DFMEA, DFA, DOE, Risk Mitigation Plans, definition of Key Characteristics, tolerance stack-ups and Certification plans. Function as the leader and/or as a team member as part of development teams. Train and mentor junior project team members.

Senior Engineer
Leggett & Platt, Grand Rapids, MI
2012 – 2017
Duties included leading engineers and technicians who design products and oversee production and quality control. Direct and coordinate design, quality assurance and testing in an industrial environment. Oversee the research and development of new products and procedures. Train and mentor other engineers and supporting staff. Discuss and prepare project specifications with detailed plans to accomplish goals. Analyze available resources. Review, approve, and/or modify product designs. Prepare budgets, bids, and contracts. Approve expenditures. Review and recommend contracts. Draft proposals, cost estimates and reports for clients. Develop overall concepts for new products. Check technical accuracy of work. Establish administrative policies, procedures, and standards. Confer with higher levels of management.

Senior Project Engineer
Tennant Co, Holland, MI
2011 – 2012

Duties included supporting a multifunctional team to achieve cost, quality, and timing objectives for several projects. Lead design teams in specific tasks of projects including, but not limited to, technical studies, electro-mechanical product design, preparation of specifications and technical plans, and product validation. Plan and organize project staff according to project requirements. Review product designs for compliance with engineering principles, company standards, government regulations, and customer contract requirements. Evaluate and approve design changes, specifications, and drawing releases. Develop project plans and schedules. Track and report progress to Senior / Engineering Manager and Program Management. Support all engineering aspects of a project including, but not limited to QFD, DFMEA, design reviews, CAE, product validation, and problem solving. Represent the design team in cross-functional meetings.

Product Development Engineer
Knoll, Inc., Grand Rapids, MI
2004 – 2011

Duties included leading engineering efforts and provide technical leadership for new product development projects. Manage the work of CAD designers. Research new techniques, equipment, products, materials and technology for use in product development and production. Design and develop new products from concept to production based upon application of sound engineering principles while achieving short and long-term business goals. Lead cost improvement and value analysis projects for existing products to improve performance, reliability, cost and appearance. Lead design changes related to field problem reports. Ensure proper and complete engineering documentation of technical data. Define and direct product tests and prepare written reports of results. Establish engineering and test specifications, information for instruction sheets and other company documentation to support assigned products and projects.

Senior Product Engineer
Steelcase, Inc./Office Details, Inc, Grand Rapids, MI
1999 – 2004

Duties included leading engineering efforts for new product development projects. Collaborate with personnel from marketing, manufacturing engineering and other corporate development and manufacturing departments. Coordinate the activities of manufacturing alliances and engineering consultants. Responsible for filing patent applications on all appropriate designs to protect intellectual properties (Currently named on three patents with two additional patents pending.) Provide high level engineering support in specialized areas such as stress analysis, value analysis, quality problem solving and computer aided design. Coordinate product documentation for approved designs. Manage development of accurate CAD models and component drawings. Report project status and activities to executive management team. Negotiate development agreements with design and engineering firms.

Product Engineer
S.C. Corporate Development Center
1996 – 1999

Duties included developing engineering solutions for new products and product enhancements while meeting corporate goals of function, aesthetics, safety, manufacturability and profitability. Responsible for fabrication of prototypes, testing, cost and profitability estimates and securing appropriate design approvals according to project schedules. Direct activities of drafters and designers assigned to specific projects. Assure completeness and accuracy of engineering drawings and installation instruction sheets. Specify product dimensional tolerances using geometric dimensioning and tolerancing techniques.

Test Engineer
Contract position with Steelcase, Inc.
1995 – 1996

Design new methods of testing for products, processes and materials producing standards of performance for product acceptance. Develop product performance specifications and standards. Perform evaluations related to problems in manufacturing and product design in conjunction with product engineering, industrial engineering, quality assurance and various production personnel. Perform tests and evaluations on products and materials along with accurate reporting of test results. Coordinate engineering laboratory requests to assure timely and efficient completion of testing.

Production Planner
Rapistan Demag, Inc., Grand Rapids, MI
1992 – 1995

Determine product routings for manufacturing and assisted with design of new and modified products to optimize manufacturing processes stressing cost and inventory reduction. Analyze incoming orders for compatibility and completeness of equipment ordered. Process modifications to standard products. Interpret special designs from engineering to identify special material requirements. Convert all details into a computer language and control data input sequence. Review order data for content, material support and accuracy. Process approximately \$20 million of equipment orders per year.

Mechanical Engineer
Entalla Laboratories, Inc., Grand Rapids, MI
1990 – 1991

Determine structural characteristics and assist with product designs using theoretical and empirical procedures both internally and at customer facilities. Perform destructive and nondestructive tests at material, component and assembly levels to assist in product evaluation. Design new test procedures and construct test fixtures for use in nonstandard tests. Provide mechanical engineering support for other departments. Familiar with automotive and ASTM specifications.

Expert Witness Experience

Deposition

June 2024
Slattery v GHP Group, Inc.
Expert Witness for Petrucelli Waara on behalf of Slattery
United States District Court, Case No. 2:23-cv-10

May 2023
Kelley Follett v Deer Tracks Junction, LLC
Expert Witness for Ward Law PC on behalf of Deer Tracks Junction, LLC
State of Michigan, Kent County 17th Circuit Court, Case No. 22-06097-NO

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