

EDUCATION

1998 **Bachelor of Science in Mechanical Engineering**
University of Missouri

EXPERIENCE

2014 **Engineering Design & Testing Corp.**
to Present **Overland Park, Kansas**

Consulting Engineer

Consultation in the origin and cause and damage assessment of mechanical systems and components. Includes specialized consulting in the areas of mechanical systems, equipment specification, centrifugal compressor testing and design, vehicle mechanical and electrical systems, gearbox analysis and design. Investigation and analysis of mechanical fractures of materials and components. Investigation of cause and extent of building envelope damage, with experience in water infiltration, moisture intrusion, hail/wind damage, and long-term deterioration. Assessment of fire damage related to mechanical equipment. Preparation of repair and/or replace cost estimates.

2011 **Innovative Standards, Inc.**
to 2014 **Lenexa, Kansas**

Vice President of Operations, Director of Engineering

Design and construction of electromechanical products for consumer use. Design of power transmission systems, aluminum castings, steel and aluminum weldments, and development of enclosures to provide compliance with Consumer Fire Regulations. Design of product chassis electrical including wiring harness design, development of control systems and specification of electrical components including direct drive motors, gear motors, linear actuators, proximity switches. Cost analysis of products and supply chain development.

2008 **Shuttlewagon Inc./ Nordco**
to 2011 **Grandview, Missouri**

Product Development Engineer, Engineering Lead

Design, testing and construction of on/off rail vehicle. Development of high capacity vehicle compressor drive systems, hydraulic manifolds, Tier 4 diesel engine implementation and test cell development, as well as axle, transmission, driveshaft and torque converter evaluation and specification. Also responsible for chassis electrical harness design and management of Printed Circuit Board (PCB) development for use in off-highway equipment. Vehicle electrical design, including incorporation of SAE J1939 CANbus systems. Design and Finite Element Analysis (FEA) of heavy steel weldments.

2005
to 2008

**Eskridge Inc.
Olathe, Kansas**

Project Engineer, Product Engineer

Design, testing and manufacture of planetary gear drives and multi-disc shaft brakes. Development and detailed analysis/prediction of gear life. Gearbox design also including finite element analysis of transmission cases, gear shafts and gear carriers. Implementation of carburized steel, through-hardened steel, gray iron, ductile iron and austempered ductile iron components, both cast and forged. Analysis of failed components including damage resulting from heat treat deficiencies, metallurgical composition issues, or overload conditions.

1998
to 2004

**Accessible Technologies, Inc.
Lenexa, Kansas**

Product Development Engineer, Product Manager

Centrifugal compressor design for automotive and industrial applications. Compressor gear and shaft design, gear case design, impeller design, and design of compressor covers. Product validation including operation in SAE J1723 supercharger test cell. Compressor implementation including engine dynamometer testing as well as in field use. Additional product development responsibilities included the development of air-to-air and air-to-liquid heat exchangers. Design of thermal formed and roto-molded plastic components.

REGISTRATIONS and CERTIFICATIONS

Registered Professional Engineer in Arizona (#73645)
Registered Professional Engineer in Arkansas (#16541)
Registered Professional Engineer in Colorado (#PE.0049810)
Registered Professional Engineer in Florida (#PE99451)
Registered Professional Engineer in Illinois (#62.067853)
Registered Professional Engineer in Indiana (#PE12100716)
Registered Professional Engineer in Iowa (#22692)
Registered Professional Engineer in Kansas (#24284)
Registered Professional Engineer in Kentucky (#39021)
Registered Professional Engineer in Louisiana (#45522)
Registered Professional Engineer in Michigan (#6201309307)
Registered Professional Engineer in Minnesota (#52946)
Registered Professional Engineer in Missouri (#2012018136)
Registered Professional Engineer in Nebraska (#E-15509)
Registered Professional Engineer in New York (#98735)
Registered Professional Engineer in North Carolina (#51501)
Registered Professional Engineer in North Dakota (#PE-29793)
Registered Professional Engineer in Ohio (#PE.85884)
Registered Professional Engineer in Oklahoma (#27858)
Registered Professional Engineer in South Dakota (#12823)

Registered Professional Engineer in Texas (#119810)
Registered Professional Engineer in United State Virgin Islands (#0-51760-1B)
Registered Professional Engineer in Wisconsin (#E-44332)
Registered Professional Engineer in Wyoming (#19886)
National Council of Examiners for Engineering and Surveying (#13-265-21)

PROFESSIONAL ORGANIZATIONS

American Society of Mechanical Engineers (ASME)
ASM Failure Analysis Society
ASM International
National Association of Fire Investigators (NAFI)
National Fire Protection Association (NFPA)
Society of Automotive Engineers (SAE)

PUBLICATIONS

“Motorsports – Hard Work, Fun, Education or “All of the Above” The Stress Point, Engineering Design and Testing, June 15, 2023, <https://www.edtengineers.com/blog-post/motorsports-hard-work-fun-education-or-all-above>

“Common Arc Welding Processes” The Stress Point, Engineering Design and Testing, May 18, 2022, <https://www.edtengineers.com/blog-post/common-arc-welding-processes>

“Centrifugal Compressors – Simultaneously Simple and Complex” The Stress Point, Engineering Design and Testing, December 28, 2021, <https://www.edtengineers.com/blog-post/centrifugal-compressors>

“Gensets” The Stress Point, Engineering Design and Testing, February 18, 2021, <https://www.edtengineers.com/blog-post/gensets>

“SEM: An Invaluable Tool in Failure Analysis” with Richard L. Ellsworth, ASM Advanced Materials & Processes, Volume 177, No. 6, September 2019

“DMM Tech; Wiring Basics” Dirt Modified Magazine, July 2014

“Block Party; The build of a 1000+ hp Power Adder Small-Block” Fastest Street Car Magazine, June 2008

“Be Green and Go Fast; E85: Fuel or Fad” Fastest Street Car Magazine, October 2007 (Co-Authored by Jake Amatisto)

“Tubular: A Look at Headers, Their Design and Theory” Fastest Street Car Magazine, April 2007

“Manifold Mania; To Fab or Not to Fab” Fastest Street Car Magazine, December 2006

“Secrets Revealed; Comp Cams: Inside Cam Development” Fastest Street Car Magazine, September 2006

PATENTS

6,474,318 “Air induction system having inlet valve”
6,571,780 “Air induction system having inlet valve”
6,691,685 “Air induction system having inlet valve”

6,786,044 "Air induction system having inlet valve"
7,107,962 "Carburetor hat for forced induction system"
11,879,478 "Centrifugal supercharger transmission case"

PRESENTATIONS

- 2023 Presentation Given: "*Impact of Data and Video in Auto Cases*," NASP 2023 Fall Conference, November 7, 2023, Colorado Springs, Colorado
- 2023 Presentation Given: "*Gas Leaks and Explosions*," Arkansas IAAI 2023 Fall Conference, October 5-6, 2023, Harrison, Arkansas
- 2022 Presentation Given: "*Forensic Engineering and its Application to Truck and Heavy Equipment Claims*," 2022 National Truck and Heavy Equipment Claims Conference (NTHECC), October 1, 2022, San Antonio, Texas
- 2021 Presentation Given: "*Large Internal Combustion Engine (Genset) Main Bearing Failure After Rebuild*," 2021 ASM IMAT (International Materials Applications and Technologies) Conference, September 15, 2021, St. Louis, Missouri
- 2016 Presentation Given: "*Drag Racing/High Performance Rollover and Crash Protection Structures and Their Evolution from WWII to Present*," 2016 ASM MS&T (Materials Science and Technologies) Conference, October 26, 2016, Salt Lake City, Utah

CONTINUING EDUCATION

- 2018 *International Symposium on Fire Investigation Science and Technology*
- 2016 *International Symposium on Fire Investigation Science and Technology*
- 2015 *Investigation of Gas and Electric Appliance Fires*
Fire, Arson & Explosion Investigation, NAFI
Principles of Failure Analysis, ASM International
- 2014 *OSHA 29 FR 1910.146 Confined Space Certification*