

Joel D. Hassebrock

PE

Senior Consultant & Regional Operations
Manager



Mr. Hassebrock is a Senior Consultant at Engineering Systems Inc. based in the Omaha, Nebraska office and is a licensed professional metallurgical and materials processing engineer in the State of Nebraska. He is a member of ESI's Rail Practice Group.

Mr. Hassebrock has over fifteen years of experience in failure analysis, metallurgical evaluation, and materials testing across diverse industries. He conducts investigations involving railroad components, bearings, gears, shafts, fasteners, welds, corrosion mechanisms, and heat-treated components, with work spanning both laboratory and field environments.

His technical expertise includes the use of glow discharge and optical emission spectrometers, universal servo-hydraulic tensile testing machines, scanning electron microscopy (SEM), optical microscopy, metallographic preparation, hardness testing, and manual machining using lathes and mills. He routinely applies these tools to determine failure modes such as fatigue, fracture, corrosion, and wear.

Mr. Hassebrock's prior experience also includes field testing, data acquisition & processing, onsite third-party quality assurance, and dynamic railway vehicle simulations. He has previously helped develop, implement, and maintain procedures to ensure ISO 17025 accreditation, demonstrating his commitment to quality standards and continuous improvement.

Education

MS, Welding Engineering. The Ohio State University. Expected Graduation 2027

MBA, Creighton University, College of Business. 2013

BS, Materials Engineering. Iowa State University. 2009

Licenses & Certifications

- State of Nebraska P.E. License E-17978

Contact Information

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ESi Omaha

5697 N 13th Street

Omaha, NE 68110

Areas of Specialization

- Metallurgical Failure Analysis
- Railcar Wheels, Axles & Bearings
- Railcar Truck Castings & Assemblies
- Laboratory & Industrial Testing
- Mechanical Testing
- Weld Evaluations
- Corrosion Analysis
- Nondestructive Testing & Inspection
- Fixture & Test Design
- 3- Dimensional Printing

Positions Held

Engineering Systems Inc., Omaha, Nebraska

- Regional Operations Manager, 2024 – Present
- Senior Consultant, 2026 – Present
- Senior Staff Consultant 2023 – 2025
- Staff Consultant, 2019 – 2022
- Associate Staff Consultant, 2015 – 2019

TÜV Rheinland Rail Sciences Inc., Omaha, Nebraska

- Manager Vehicle Dynamics and Testing, 2014 – 2014
- Laboratory Manager, 2013 - 2014
- Laboratory Technician, 2010 - 2013

Continuing Education

- **Crash Reconstruction for the Engineer** – Northwestern University Center for Public Safety, 2022
- **Geomagic Design X Training Course** – 3DSystems, 2015
- **Geomagic Control Training Course** – 3DSystems, 2015

Professional Affiliations

American Society for Materials International (ASM)

- Member

The Minerals, Metals & Materials Society (TMS)

- Member

American Railway Engineering and Maintenance-of-Way Association (AREMA)

- Member of Committee 4 - Rail

American Welding Society (AWS)

- Member

American Society for Mechanical Engineers (ASME)

- Member

Engineering Club of Omaha

- Member

National Council of Examiners for Engineering and Surveying (NCEES)

- Exam Development Committee Member, 2022 – Present

Journal of Failure Analysis and Prevention

- Manuscript Reviewer, 2023 – Present

Upward Sports - Omaha, NE

- Youth Soccer Coach, 2024 & 2026
- Youth Flag Football Coach, 2023 - 2024

Community Organization - Omaha, NE

- Kids Desk Check-In, 2023-present

Publications

“Measuring Tension Imbalance in U-Bolts During Tightening,” Leah M Ginsberg, **Joel D. Hassebrock**, Jacob A. Wagner, Hans C. Iwand, Alfred M. Pettinger, Journal of Failure Analysis and Prevention, Volume 25, pp. 802-812, April 2025.

“Failure Analysis of Railroad Components,” **J. D. Hassebrock**, H. C. Iwand, ASM Handbook, Volume 11A, pp.754-777, Analysis and Prevention of Component and Equipment Failures, 2021.

“Fracture of Hex Bars During Manufacture,” **J. D. Hassebrock**, H. C. Iwand, Journal of Failure Analysis and Prevention, Volume 16, pp. 533-536, August 2016.

Presentations

“A Review of Recent Heavy Haul Wheel and Bearing Failures on North American Freight Railroads,” C. Lonsdale, **J. Hassebrock**, J. Wagner, S. Karunakaran, T. Wynne. International Wheelset Congress (IWC), Chicago, IL, June 2023.