
WINGFIELD ENGINEERING INC.

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**Curriculum
Vitae**

Jeffrey R. Wingfield, P.E.

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QUALIFICATIONS / SKILLS

Licensed professional engineer, registered in the state of Minnesota, with more than 40 years of mechanical engineering experience including hydraulic test equipment design, machining, forensic failure analysis with an emphasis on vehicle systems and fire investigation.

- Started and operates a successful business for 40+ years
- Strong engineering ability to trouble-shoot, analyze, and repair failed mechanical systems
- Unique design and application engineering skills
- Strong scheduling and organizational skills
- Goal orientated
- Broad base of interdisciplinary understanding in the electrical, mechanical and hydraulic fields
- Extensive vehicle fire investigation knowledge
- Complete design and build of fixtures to test failure hypotheses

WORK HISTORY

1989-Present Consulting Mechanical Engineer and Expert Witness, Pine River, Minnesota

Mechanical Engineer providing consulting engineering services to insurance, legal and industrial clients. Extensive work in failure analysis of mechanical systems and designs, observation of machinery disassembly, review of lab tests and shop records, submitting detailed engineering and photographic reports, and providing expert witness testimony. Specialist in vehicle and equipment failure analysis including fire investigations.

1980-Present President, Wingfield Engineering Inc, Pine River, Minnesota

Wingfield Engineering Inc. is a specialist in producing custom automotive, marine and truck transmissions for extreme duty applications. Specialty services include improving transmission performance with engineered enhancements such as reduced frictional losses, improved lubrication, increased clutch capacity, enhanced hydraulic controls, and custom gear ratios.

Design and build specialty power transmission machinery including manufacture of discontinued replacement components. Specific projects have included a high performance generator for a military project, redesign of hydraulic shift controls for

vintage Chris-Craft boats, design and build of custom support frameworks, restoration of a museum quality 1924 Garwood boat transmission, and others.

- 1980-1981 Hydro-Mechanical Product Engineer , MTS Systems Corporation, Eden Prairie, Minnesota
- Engineering design of custom testing equipment for research and automotive applications. Responsibilities included cost quoting and design functions in high velocity hydraulic actuators. Notable achievements included design and development of a high flow-low pressure drop hydraulic manifold and a test system for aircraft landing gear.
- 1978-1980 Mechanical Design Engineer, Ford Motor Company, Dearborn, Michigan
- Responsibilities included engineering design and assembly modifications on heavy trucks with the focus on reduction of warranty costs and improving vehicle quality. Duties included scale-up and troubleshooting of electrical and mechanical design changes at the Heavy Truck Plant in Louisville, KY during model year changeover.
- 1978 Co-op Engineer, 3M Company, Maplewood, Minnesota
- Designed, constructed and tested a pick-and-place machine for manufacture of surgical products. Developed a gripping device that could be easily released after final assembly.
- 1977 Co-op Engineer, Northern States Power, Sherco Power Plant, Monticello, Minnesota
- Analyzed and resolved significant control issues associated with a failed to be commissioned black start generator. Significant exposure to the maintenance of a large state of the art coal-fired power plant.

EDUCATION

Bachelor of Science Mechanical Engineering (with distinction), University of Minnesota, Minneapolis, MN, 1978

Certificates of Completion in Machining - 6 quarters, 1980, 1981, 1982 from Hennepin County Vo-Tech, Eden Prairie, MN.

More than 30 power transmission seminars and short courses, 1980 to date

ATRA – Automatic Transmission Failures and Methodology Seminar, Minneapolis, MN. 2002

Vehicle Fire, Arson & Explosion Investigation Science & Technology Seminar, Eastern Kentucky University in Richmond, Kentucky, 2002

Minnesota Institute for Legal Education (MILE) Minnesota Products Liability Seminar, 2002

Seminar on Vehicle Fire Investigations at the IAAI Convention, St. Cloud, MN, 2003

ATRA – Automatic Transmission Failures and Analysis, Minneapolis, MN, 2003

Fundamentals of Engineering Examination, St. Paul, MN, 2004

Professional Engineering Examination, Minneapolis, MN, 2005

Pennsylvania Association of Arson Investigations Vehicle Fire Seminar, State College, PA, 2005

Society of Automotive Engineers (SAE) Applied Brake Controls; ABS, TCS and ESC Seminar, Brimley, MI, 2007

Society of Automotive Engineers (SAE) Role of the Expert Witness in Product Liability Litigation Seminar, Troy, MI, 2008

Minnesota Society of Professional Engineers (MSPE) 35W Bridge Tour and Presentation, Minneapolis, MN, 2008

Minnesota Society of Professional Engineers (MSPE) Forensic Engineering Seminar, Minneapolis, MN, 2008

Minnesota Society of Professional Engineers (MSPE) Xcel Energy High Bridge Power Plant Presentation, St. Paul, MN, 2009

Minnesota Society of Professional Engineers (MSPE) Ethics Case Studies Seminar, Eden Prairie, MN, 2009

MN Chapter of International Association of Arson Investigators (MN IAAI) Case Studies and Best Practices in Fire Investigation, Evidence Collection, Recognizing the Importance of Vehicle Fires, 24th Annual Fire Investigation Conference, St. Cloud, MN 2011

American Society of Mechanical Engineers (ASME) Professional and Product Liability, Plymouth, MN 2012

Minnesota Society of Professional Engineers (MSPE) Personal Liability for Professional Engineers, St. Paul, MN 2012

Minnesota Society of Professional Engineers (MSPE) Metallurgical Failure Analysis: Tools, Case Studies and Why It Is Important, Plymouth, MN 2013

MN Chapter of International Association of Arson Investigators (MN IAAI) Report Writing New Technology / Truck Bus Fires / Fire Investigation / Serial

Arsonist / Complex Investigations / Use of Social Media in Investigations, 26th Annual Fire Investigation Conference, St. Cloud, MN 2013

Minnesota Society of Professional Engineers (MSPE) The Business of Engineering: Understanding Law, Finance, Marketing and Health Insurance, Maple Grove, MN 2014

Minnesota Society of Professional Engineers (MSPE) Ethical Professional Practice: Learning from Others' Mistakes, St. Paul, MN 2014

Minnesota Society of Professional Engineers (MSPE) Indemnity Agreements-What Design Professionals Need to Know, Webinar 2014

Minnesota Society of Professional Engineers (MSPE) The Expanding Role of Engineering Ethics, Roseville, MN 2014

Minnesota Society of Professional Engineers (MSPE) Building a Positive Work Culture, Webinar 2015

Minnesota Society of Professional Engineers (MSPE) Engineering Ethics & Lessons Learned from the Space Shuttle Challenger & Columbia Accidents, Plymouth, MN 2017

MN Chapter of International Association of Arson Investigators (MN IAAI) Digital Evidence, Case Law Developments, Uses and Abuses of NFPA 921, Complex Fire Scene Investigation, Social Media, 2017 Fire Investigation Conference, St. Cloud, MN 2017

MN Chapter of International Association of Arson Investigators (MN IAAI) Data Available from Control Modules in Vehicles, Spoliation Under NFPA 921 and MN Court Cases, 2019 Fire Investigation Conference, St. Cloud, MN 2019

Engineering Alliance MN (EA-MN) Why Good People Make Bad Decisions – Ethics Webinar, 2020

Engineering Alliance MN (EA-MN) Character-Based Professional Ethics – Ethics Webinar, 2021

NSPE-MN 2018-02 Connected and Autonomous Vehicles: What Does it Mean to You? Webinar, 2022

NSPE-MN 2020-01 Adaptive Strategies for Individual Agility, Webinar, 2022

International Association of Arson Investigators (IAAI) CFI-Trainer, Alternative Fuel Vehicles, How These Vehicles are Designed and Fueled, 2022

International Association of Arson Investigators (IAAI) CFI-Trainer, Electric and Hybrid Vehicle Fires, How to Interact with and Common Failure Modes of Electric and Hybrid Vehicles, 2022

International Association of Arson Investigators (IAAI) CFI-Trainer, Arc Mapping: Arc Fault Circuit Analysis/How to Present in Legal Proceedings 2022

International Association of Arson Investigators (IAAI) CFI Trainer, Preparation for the Marine Fire Scene, 2022

International Association of Arson Investigators (IAAI) CFI Trainer, The Deposition Part 1: Format, Content, and Preparation 2022

International Association of Arson Investigators (IAAI) CFI Trainer, The Deposition Part 2: Questioning, Tactics, and Effective Responses 2022

PRESENTATIONS

“Distinctions in Design of Chevrolet Vehicles” presentation, Iten Chevrolet, Brooklyn Center, MN, 1985

“Strengthening TH200R4 Automatic Transmission for Extreme Load Applications” presentation, Buick Grand National Collectors, St. Louis Park, MN, 1989 and 1991

“Custom Power Transmission Design and Development” presentation, United Defense Corp., Fridley, MN, 1997

“Chris-O-Matic Redesign for Improved Reliability and Response Time” presentation, Bristol Classics Inc., Shorewood, MN, 1999

“Heavy Equipment Fire Seminar” presentation, IAAI Wisconsin, Rhinelander, WI, 2009

“Professional and Product Liability Symposium” presentation, ASME, Plymouth, MN, 2012

“Vehicle and Heavy Equipment Fire Investigation” presentation, IAAI MN Spring Conference, St. Cloud, MN, March 26, 2015

“Ethics in Forensic Engineering & Expert Testimony” presentation, MnSPE, Arden Hills, MN, September 13, 2018

PUBLICATIONS

1. Wingfield, Jeffrey. Engineering Newsletter: “Driving Home a Point”. Crane Engineering-Probe Newsletter. First Quarter 2002, Print.
2. Wingfield, Jeffrey. Engineering Newsletter: Steering Column “Towing the Line”. Crane Engineering-Probe Newsletter. Third Quarter 2003, Print.

3. Wingfield, Jeffrey. Engineering Newsletter: Steering Column "Beswitched" Ignitions Cause Fires, Fuel Leaks Pose Danger". Crane Engineering-Probe Newsletter. First Quarter 2004
4. Wingfield, Jeffrey. Engineering Newsletter: Steering Column "Engine Design May Cause Damaging Vibration". Crane Engineering-Probe Newsletter. First Issue 2007

LICENSURE

Registered Professional Engineer State of Minnesota.
Minnesota License # 44216

AFFILIATIONS

Engineering Alliance Minnesota (was MnSPE) Member Number # 13842,
2009 to present

International Association of Arson Investigators (IAAI) Minnesota Chapter
Member # 1099, 2003 to present

International Association of Arson Investigators (IAAI) Wisconsin Chapter
Member # 3178, 2009 to present - present

National Association of Fire Investigators (NAFI) Certified Vehicle Fire
Investigator Member # 8743V, 2002 to present

Society of Automotive Engineers International (SAE) Member Number -
6107690003, 2002 to present