



Robert Sparling, B.Eng.Mgt., P.Eng.

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EXPERT SUMMARY

Mr. Rob Sparling the Senior Vice President at 30 Forensic Engineering and Practice Lead of the Materials & Product Failure analysis group. Rob possesses 20 years of industry experience and over 12 years of failure analysis and related work experience in the Aerospace industry. He has specialized experience in the causes of failure of consumer and industrial products. He also investigates personal injuries associated with product failures, including power tools, amusement rides, scaffolding, lifts, doors, glass bottles/cups, hoisting equipment, and a variety of other products.

SPECIALIZED PROFESSIONAL COMPETENCIES

- Product Liability Investigations
- Personal Injury Investigations
- Mechanical Failure Analysis
- Fuel oil System Failure Analysis
- Gas and Steam Turbine Failure Analysis
- Hydro Electric Turbine Failure Analysis
- Rotating Equipment Failure Analysis
- Piping and Plumbing Analysis
- HVAC and Fancoil Failures
- Boiler Tube Corrosion and Failure
- Furniture Injury Investigations
- Industrial/Construction Failures/Injury Investigations
- Fractography and Fracture Surface Analysis
- Analysis of Welded, Brazed or Soldered joints.
- Metallurgical Analysis of the Microstructure and Mechanical Properties of Materials
- Corrosion Characterization and Assessment
- Glass and Ceramic Failures and Personal Injury Investigations
- Plastic and Polymer Failures



CURRICULUM VITAE

Robert Sparling, B.Eng.Mgt., P.Eng.

ACADEMIC BACKGROUND

Bachelor of Engineering and Management, Summa Cum Laude, McMaster University, 1995

PROFESSIONAL EXPERIENCE

30 Forensic Engineering

Senior Vice President & Practice Lead, Materials & Product Failure
2018 – Present, Toronto, ON

- Member of the executive leadership team responsible for the management, strategic planning, and governance of 30 Forensic Engineering
- Lead investigator in over 2000 failure investigations
- Over 750 detailed technical reports produced
- Over 175 personal injury investigations
- Over 100 investigations into fuel oil system failures and leaks
- Product performance/standard compliance and personal injury
- Product failure investigations
- Gas and steam turbine failure investigations
- Industrial Diesel Engine Failures
- Heavy Equipment Failures
- Fuel oil tank corrosion investigations
- Cases involving plumbing failures
- Welding, soldering and brazing failure investigations
- Industrial equipment failure investigations
- Automotive component failure investigations
- Amusement Ride investigations including swings and Ferris wheels
- Investigating failures resulting from inappropriate material selection
- Cases involving the characterization and/or identification of materials

Principal, Materials & Product Failure Group
2008 – 2018, Toronto, ON

Liburdi Turbine Services Ltd.

Senior Materials Engineer – Processes
2008 – 2008, Dundas, ON

- Welding - GTAW, PAW, SAW, Laser Welding
- Vacuum and Controlled Atmosphere Heat Treatment



- Brazing and Wide Gap Brazing
- Elevated Temperature Welding
- Automated Welding
- Induction heating
- Thermal spray coatings
- Chemical Stripping
- Machining of Steels, Stainless Steels and Superalloys
- Electro-Discharge Machining (EDM)
- Metal and Glass Bead Peening

Senior Engineer – Manufacturing

2004 – 2007, Dundas, ON

- Responsible for Aerospace and Industrial Gas Turbine component repairs including:
 - Engineering responsibility for projects totaling more than \$30,000,000 in revenue
 - Communication of engineering changes to 120 shop floor staff
 - Material deviation and conformance evaluation
 - Process flow and monitoring

Liburdi Automation Inc.

Senior Project Engineer – Automated Brazing Equipment

2007 – 2008, Dundas, ON

- Process/system development including:
 - Developing a novel brazing process for applying cubic boron nitride to turbine blades
 - Designing a \$1,000,000 automated vacuum brazing system incorporating, high speed/resolution infrared temperature measurement, robotic part manipulation, automated part handling, induction heating, 10^{-9} Atmosphere vacuum chamber and pumping system
 - Leading a build team of 2 engineers and 3 technicians
 - Overseas system installation and support

Liburdi Engineering Ltd.

Senior Metallurgical Engineer

2001 – 2004, Dundas, ON

- Producing and reviewing detailed technical reports on-site inspections, remaining life and reparability of gas turbine and jet engine components
- Conducting more than 30 failure analyses on gas turbine components
- Developing shop floor level repair specifications for gas turbine components
- Developing modified wide gap brazing process for new industrial gas turbine blades



- Managing a multi-year, \$5,000,000 new part manufacturing project

Metallurgical Engineer

1997 – 2001, Dundas, ON

- Performing over 200 component life and failure analysis
- Developing wide gap brazing process

PROFESSIONAL SOCIETIES AND ASSOCIATIONS

- Professional Engineers of Ontario
- Ontario Society for Professional Engineers
- A Society for Materials (ASM International)
- American Society of Mechanical Engineers (ASME)
- National Association of Corrosion Engineers (NACE)

AWARDS AND ACHIEVEMENTS

- 2011-2013 ASM, Canada Counsel
- 2012-2017 ASM, Ontario Chapter, Treasurer
- 2011 Chair, ASM, Ontario Chapter
- 2009, 2010 Vice Chair, ASM Ontario Chapter
- The Shell Canada Prize in Engineering and Management
- Hogooven's Summer Internship Award
- National Science and Engineering Research Council of Canada Summer Research Grant
- American Standard Award
- Canadian Ceramics Society Scholarship
- The MMG-Neosid Canada Limited Ceramic Engineering Prize

COURT AND OTHER APPEARANCES

- Qualified as an expert witness 3 times in Ontario Superior Court as expert in metallurgical analysis, plumbing, the performance of windows, fuel oil tank microbiologically influenced corrosion, the fuel oil code history as it pertains to microbiologically influenced corrosion failures, history, underground piping services and the performance of buried PVC pipping
- Qualified as an expert witness in an Ontario Ministry of the Environment Tribunal as an expert in materials engineering, vacuum systems, corrosion, failure analysis and stress analysis of failed objects



PUBLICATIONS

- “Forensic Engineering Tracks Valve Failures”, Valve Magazine, July 2013
- “Problems in the Pipes”, Claims Canada, 2011
- “When Objects Break, Protecting the Evidence”, Claims Canada, 2010
- “Liburdi Power Metallurgy, Applications for Manufacture and Repair of Gas Turbine Components.”, 6th International Parsons Turbine Conference, Dublin, Ireland, 2003
- “T-64 Third Stage Nozzle Braze Repair.”, ASME Turbo Expo, Atlanta, Georgia, USA, 2003
- “Liburdi Power Metallurgy, New Compositions for High Strength Repairs of Turbine Components,”, ASME Turbo Expo, Amsterdam, The Netherlands, 2002

PATENTS

- “Method for Manufacturing an Abrasive Coating on a Gas Turbine Component”, International Patent, 2009

SPEAKING ENGAGEMENTS

- “Fuel Oil Leaks”, Canadian Oil Heat Association, 2016 Annual Conference, June 2016
- “Review of Fuel Oil Tank Failures in Ontario, Canadian Oil Heat Association, Ontario Chapter, September 30, 2015
- “Review of Fuel Oil System Failures in Ontario”, Failure Analysis and Prevention Symposium, Montreal, October 2013
- “Fuel Oil Tank Failures and Spills”, OMIA Conference, March 2010
- “Diesel Engine Failure/Burning Steel”, ASM Ontario Chapter, October 2009

STANDARDS COMMITTEES

- CSA B125, “Plumbing Fixtures”, Standard Committee, Voting Member Since 2013