



Roch J. Shipley, Ph.D., FASM, P.E.

Principal Engineer

rjshipley@proaaci.com

331-229-3313

2007 - Professional Analysis and Consulting, Inc. - Lisle, IL

Principal Engineer

Responsible for a wide variety of engineering failure analyses involving materials, design, manufacturing, and operational factors. Experienced with multiple engineering/scientific disciplines and accident reconstruction. Evaluation of components from aircraft, automobiles, trucks, railroad, industrial equipment, fire-damaged artifacts, electrical and gas appliances, and utility equipment. Experience with both ferrous and non-ferrous alloys, including aluminum, titanium, and nickel-base superalloys. Licensed by examination as a Professional Engineer. Testimony in both State and Federal Courts.

2006 - 2007 ITC Expert Services - Sugar Grove, IL

Sr. Vice-President

Areas of engineering responsibility similar to those currently at Professional Analysis and Consulting, Inc.

2002 – 2006 Packer Engineering, Inc. - Naperville, Illinois

Sr. Vice-President, 2002 – 2006

Vice-President, 2002

Areas of engineering responsibility similar to those currently at Professional Analysis and Consulting, Inc. Also served in various management and leadership roles.

1990 - 2002 Engineering Systems Inc. - Aurora, Illinois

Principal Engineer, 1997 – 2002

Director, Materials Engineering, 1995 – 2002

Manager, Materials Engineering, 1993 – 1994

Senior Consultant, 1990 – 1992

Areas of engineering responsibility were comparable to those of current position at Professional Analysis and Consulting, Inc. At various times was also responsible for Company information systems, library, graphics, artifact handling, and other operational areas.

1991 - 1993 Illinois Institute of Technology - Chicago, Illinois

Part Time Professor in Metallurgical and Materials Engineering Department,
taught “Engineering Materials and Design.”

1982 - 1990 Textron Inc., Turbo Components Group - Cleveland, Ohio

Principal Engineer, 1986 – 1990

Principal Engineer, 1984 – 1986 (TRW, Inc.)

Research Engineer, 1982 – 1984 (TRW, Inc.)

Responsible for research and development of advanced materials and manufacturing processes for aircraft engines and other areas. One patented invention (see Patent section below). (Textron purchased the business from TRW, Aircraft Components Group, in 1986.)

1980 - 1982 International Harvester Company - Chicago, Illinois

Responsible for research and development of advanced materials and manufacturing processes for agricultural and construction equipment as well as heavy trucks.

1972 - 1976 LaSalle Steel Company - Hammond, Indiana

Student Research Engineer, 1976

Quality Assurance Inspection, 1974

Research and Development Technician, 1972 – 1973

1975 Inland Steel Company - East Chicago, Indiana

Student Engineer

ACADEMIC

Ph.D. Metallurgical Engineering, Illinois Institute of Technology, Chicago, Illinois, 1980

B.S. Metallurgical Engineering, Illinois Institute of Technology, 1976

CONTINUING EDUCATION

Operator Safety Training Program – Forklift Class IV and V, OSHA (2020)

“Gas Turbine Engine Accident Investigation Course,” Viterbi School of Engineering, University of Southern California, 2010.

“General Industry Safety & Health,” U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), 10 hour course, 2006.

Packer Engineering Leadership Development Program: “Business, Strategy, and Leadership Across the Enterprise,” 2004

“A Guide to Voluntary Compliance in Safety and Health,” U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), Course #501, 1994

“Superplastic Forming/Diffusion Bonding,” Society of Manufacturing Engineers 1988

“Superplastic Forming,” Materials Engineering Institute, ASM International, 1987

“Fundamentals of Modern Fatigue Analysis,” Fracture Control Program Workshop, University of Illinois, 1982

PROFESSIONAL ENGINEER LICENSES

Illinois No. 062-048091

Michigan No. 6201050811

Maryland No. 29540

Ohio No. 68942

Pennsylvania No. 072774

AFFILIATIONS and HONORS

National Society of Professional Engineers/Illinois Society of Professional Engineers,
Member

American Welding Society, Member

The Minerals, Metals & Materials Society (TMS), Member

ASM International

Chapter Council

Chair, 1998 – 1999

Vice-Chair, 1997 – 1998

Member, 1994 – 2002

Chicago Western Chapter, Executive Committee

Chair, 1994 – 1995

Member, 1992 – 1996

Failure Analysis Committee

Chair/Co-Chair, 1998 – 2000

Vice-Chair, 1997 – 1998

Member, 1994 –

Failure Analysis Society – Founding Member

Member 2016 –

Treasurer, 2016 – 2018

President’s Award - 2021

Fellow – 2004

Handbook Committee

Member, 2012 – 2015

Investment Committee and Finance Committee

Member, 2010 – 2019

Journal of Failure Analysis and Prevention

Editorial Review Board, 2010 –

Materials Education Foundation, Board of Directors

Member, 2006 – 2019

Treasurer, 2009 – 2019

Materials Engineering Institute

Advisory Council

Chair, 2000 – 2001

Failure Analysis Certification Committee, 2003 – 2005

Fracture Mechanics and Fractography Reviewer

Tau Beta Pi (Engineering Honorary Society)

International Harvester Fellowship, Illinois Institute of Technology, 1979

Outstanding Academic Achievement, Illinois Institute of Technology, 1976

LaSalle Steel Scholarship and NSPE Monsanto Chemical Scholarship, Illinois Institute of Technology, 1972 – 1976

PATENT

“Method of Making Hollow Articles,” D.J. Moracz and R.J. Shipley, U.S. Patent No. 5,072,871, December 17, 1991

PUBLICATIONS

1. R.J. Shipley, “Chapter 5, Distortion Failures.” Understanding How Components Fail, Third Edition. By Donald J. Wulpi. Materials Park: ASM International, 2013.
2. R.J. Shipley and M.E. Stevenson, “Interpreting the Evidence: Elemental Analysis in the SEM,” Journal of Failure Analysis and Prevention, Volume 11, 2011
3. D.G. Curry, R.J. Shipley, and D.K. Hall, “Behavioral Adaption: Why “Safety” Features Don’t Always Increase Safety,” Claims Advisor, Information for Today’s Claims Professionals, Premier Issue Fall 2007.
4. R.J. Shipley and C.L. Jensen, “Columbia Failure Analysis Inspires Future Materials Engineers in Chicago,” ASM Journal of Failure Analysis and Prevention, v. 6, n. 1, February, 2006.
5. D.G. Curry, R.J. Shipley, and S.L. Worth, “Products Liability Standards for the Duty to Warn—When to Warn (and When Not To),” Indiana Civil Litigation Review, v. II, n. 2, Fall 2005.
6. W.T. Becker, R.J. Shipley, and D. Aliya, “Use of the Term Defect,” ASM Journal of Failure Analysis and Prevention, v. 5, n. 2, April 2005.
7. D.G. Curry and R.J. Shipley, “Product Safety: When to Warn (and When Not To),” DRI Magazine For The Defense, October 2004.
8. R.J. Shipley and D.A. Moore, “Everything You Thought You Knew About Materials Engineering Investigations .. And More,” DRI Products Liability Conference, February 2003.
9. W.T. Becker and R.J. Shipley, Editors: ASM Handbook, Volume 11: Failure Analysis and Prevention, ASM International, Materials Park, Ohio, 2002.

10. C.R. Morin, R.J. Shipley, and J.A. Wilkinson, "Fractography, NDE, and Fracture Mechanics Applications in Failure Analysis Studies," *Materials Characterization*, Volume 33, October 1994.
11. R.J. Shipley, P.C. Bouldin, and E.W. Holmes, "In Service Failure of SAE Grade 8.1 Wheel Studs," *ASM Handbook of Case Histories in Failure Analysis*, Volume 2, 1993.
12. D.J. Moracz, R. J. Shipley, V.S. Moxson, R.J. Killman, and H.E. Munson, "Application of Power Metallurgy Techniques to Produce Improved Bearing Elements for Liquid Rocket Engines," NASA, Report NASA CR 193731, Compressor Components Textron, Inc., Aug. 1992
13. H.F. Prosser, R.J. Shipley, P.C. Bouldin, "Arcing Fault Burndown in Low Voltage Residential Service Entrance with Aluminum Conductors," *ASM Handbook of Case Histories in Failure Analysis*, Volume 2, 1993.
14. R.J. Shipley, B.N. Bhat, R.L. Thom, and F.J. Dolan, "Improved Bearing Alloys for Cryogenic Applications," *Advanced Earth-to-Orbit Propulsion Technology 1990*, NASA Conference Publication 3092, 1990.
15. R.J. Shipley, C.R. Boyer, and J. Burlingame, "Pilot Production of Powder Forged Steel Components for the 25-mm M242 Chain Gun," Contractor Report to U.S. Army ARAED-CR-88016, 1989.
16. R.J. Shipley, "Precision Forging," *Metal Handbook*, Volume 14, 9th Edition, Forming and Forging, ASM International, 1988.
17. R.J. Shipley, T.G. Kalamasz, W.S. Darden, and D.J. Moracz, "Research on the Energy Conservation Potential of Warm Forging Technology," Final Technical Report to Department of Energy, DOE Contract No. DE-AC07-84ID12528, 1985.
18. O. Novelli and R.J. Shipley, "Warm Forging Advantages and Limitations," *Precision Metal*, October and November, 1984.
19. R.J. Shipley, Ph.D. Thesis, "Temper Embrittlement and Cold Work Effect in 5130 Steel," Illinois Institute of Technology, 1980.
20. B. Miller, R.J. Shipley, R. Parrington, D. Dennies, Editors: *ASM Handbook*, Volume 11: Failure Analysis and Prevention, ASM International, Materials Park, Ohio, 2021.
21. B. Miller, R.J. Shipley, R. Parrington, D. Dennies, Editors: *ASM Handbook*, Volume 11A: Analysis and Prevention of Component and Equipment Failures, ASM International, Materials Park, Ohio, 2021.

TECHNICAL PRESENTATIONS

1. R. J. Shipley, J. F. Lane, "Failure to Communicate: Corrosion," Failure Analysis and Prevention MS&T '15, Columbus, OH, October, 2015.
2. R. J. Shipley, "Introduction to Failure Analysis" Seminar, McCrone Associates, Inc., 2014.
3. R. J. Shipley, "Introduction to Failure Analysis" Seminar, ASM International Chicago Chapter, 2014.
4. R.J. Shipley, "Failure Analysis of a Wire Rope from an Amusement Park Ride - Part 1 – Background," Failure Analysis and Prevention, MS&T'12, Pittsburgh, PA, October, 2012.
5. R.J. Shipley, "SEM/EDS Assessment of Fractured Gas Turbine Engine Hot Section Components," Aerospace Failure Analysis, MS&T'11, Columbus, OH, October, 2011.
6. R.J. Shipley, "Root Cause Failure Analysis, Including Human Factors," ASM Western Michigan Chapter, April, 2010.
7. P. Latash, J. Mikalik, D.K. Hall, J.E. Meyer, and R.J. Shipley (presenter), "Analysis of Sealed, Integrated, Automotive Wheel Bearings," MS&T'09, Pittsburgh, PA, October, 2009.
8. R.J. Shipley, "At Least Two Sides to Every Story," MS&T'08, Pittsburgh, PA, October, 2008.
9. D.G. Curry and R.J. Shipley (presenter), "Behavioral Adaptation," Illinois Society of Professional Engineers "Boot Camp," September, 2007.
10. R.J. Shipley, "Introduction to Science and Engineering, Materials and Failure Analysis," Illinois Aviation Museum at Bolingbrook, Aero-Science Camp, July, 2007.
11. C.L. Jensen and R.J. Shipley, "Using Microscopy in Failure Analysis to Inspire Students," Microscopy and Microanalysis 2006, Chicago, August, 2006.
12. R.J. Shipley, D.K. Hall, "ASM Chicago Area Materials Camp," Packer Engineering, July, 2006.
13. R.J. Shipley, "Materials Engineering and the Failure Analysis Process," Invited guest lecturer for CIV ENG 395-0 Engineering Forensics, Northwestern University, Robert R. McCormick School of Engineering and Applied Science, April 25, 2006.
14. J. Jacover, D.R. Melton, and R.J. Shipley, "Demonstration of a Direct and Cross-Examination of a Technical Expert Contending for Obviousness," in Practising Law Institute, Patent Litigation, November 28, 2005 and October 23, 2006.
15. R.J. Shipley, D. Aliya, W.T. Becker, "Communication Issues in Failure Analysis: Use of the Word 'Defect'," MS&T'05, Pittsburgh, PA, September, 2005.

16. R.J. Shipley, "Metallurgical Failure Analysis: Present and Future," Keynote Speaker at Microscopy & Microanalysis Conference, Savannah, Georgia, August 5, 2004.
17. P.J. Pfeifer, D.A. Moore, R.J. Shipley, "Unexpected Failures at Work, Home, and Play," ASM Material Solutions 2003 Conference & Exposition, Pittsburgh, PA, October 14, 2003.
18. D.R. Atkins, D.A. Moore, R.J. Shipley, "Practical Aspects of NDE Field Examinations," ASM Material Solutions 2003 Conference & Exposition, Pittsburgh, PA (October 13, 2003).
19. "Failure Analysis of Threaded Fasteners," R.J. Shipley, ASM International Practical Failure Analysis: The Symposium, 2001 Materials Solutions Conference, Indianapolis, Indiana, November 5-8, 2001.
20. R.J. Shipley, "Failure Analysis - Lessons Learned," ASM International Indianapolis Chapter, October 16, 2000.
21. R.J. Shipley, "Introduction to Failure Prevention Through Failure Analysis," ASM International Materials Solutions Conference, October 2000.
22. "Fundamentals of Failure Analysis," R.J. Shipley, ASM International Materials Solutions Conference and Exposition, October 9-12, 2000.
23. "Failure Prevention through Education, Getting to the Root Cause," Conference organized by D.A. Aliya, J.J. Scutti, and R.J. Shipley, ASM International, Cleveland, Ohio, May 23-25, 2000.
24. R.J. Shipley, "Failure Analysis - Lessons Learned," ASM International Chicago Regional Chapter, February 8, 2000.
25. C.R. Morin, R.J. Shipley, J.A. Wilkinson, "Imperfection or Defect? - A Scientific Approach to Deciding," ASM International Materials Solutions Conference, November, 1999.
26. R.J. Shipley et al., "Ask the Experts - Failure Analysis," ASM International Materials Solutions Conference, October 1998 and November 1999.
27. R.J. Shipley et al., "Failure Analysis 101: Panel Discussion," ASM International Materials Solutions Conference, September 1997.
28. R.J. Shipley and D.M. Walker, "An Overview of the Role of Residual Stress Analysis in Failure Analysis," ASM International Materials Solutions Conference, September 1997.
29. R.J. Shipley, "Failure Analysis of Automotive Components: A Systems Approach," ASM International Detroit Chapter, May 12, 1997.
30. R.J. Shipley, "Precision Forging," H.R. Bergmann Memorial Spring Seminar, ASM International Milwaukee Chapter, April 16, 1997.
31. R.J. Shipley and H.F. Prosser, "Failure Analysis in Fire Investigation," ASM International Materials Week, Cleveland, Ohio, October 1995.

32. R.J. Shipley, "Principles of Failure Analysis: Fatigue Failures and Wear Failure," ASM International, Materials Engineering Institute, 3-hour lecture, October, 1995.
33. H.F. Prosser and R.J. Shipley, "Magnitude of Civil Structural Failures - The 1992 Chicago Floor Revisited," ASM International Materials Week, Rosemont (Chicago), Illinois, October, 1994.
34. C.R. Morin, R.J. Shipley, D.G. Klepacki, "Fractography of Alloy Steel Bolts Subjected to Bending Overload, Cyclic Overload, and Low Cycle Fatigue," ASM International Materials Week, Pittsburgh, Pennsylvania, October, 1993.
35. R.J. Shipley, "Engineering Materials and Design," METM 326, Illinois Institute of Technology, 1 semester course (Spring Semester 1991, 1992, 1993).
36. R.J. Shipley, "Principles of Failure Analysis: Gears and Threaded Fasteners," ASM International, Metals Education Institute, 3-hour lecture, November, 1992.
37. R.J. Shipley, "Metallurgical Investigations," Presentation to Consolidated Edison Personnel, November, 1992.
38. R.J. Shipley, "Warm Forging of Steel," ASM International Chicago Western Chapter, 1987.
39. R.J. Shipley, "Expert Systems for Manufacturing," ASM International Materials Week, Orlando, Florida, October 1986.
40. R.J. Shipley, D.J. Willebrand, and D.F. Gray, "Thermal-Mechanical Processing of CRS/CAP AF2-1DA-6 Superalloy," The Metallurgical Society Annual Meeting, New Orleans, Louisiana, 1986.
41. R.J. Shipley, W.S. Darden, and D.J. Moracz, "Warm Forging Technology - State of the Art and Potential for Energy Conservation," DOE Industry Debriefing, Cleveland, Ohio, 1985.
42. R.J. Shipley, "Warm Forging of Ferrous Alloys," Metal Forming/Deformation Processing Seminar, ASM International Cleveland Chapter, 1985.
43. R.J. Shipley, "Precision Warm Forming," American Society for Metals: Metals Congress, St. Louis, Missouri, 1982.
44. R.J. Shipley, "Farm Equipment Aluminum Application," Aluminum Association Seminar, Washington, D.C., 1982.
45. R.J. Shipley, "Precision Warm Forming," Society of Manufacturing Engineers, Peoria Chapter Meeting, 1982.
46. R.J. Shipley, "Precision Warm Forgings," Worcester Polytechnic Institute, 1980.