

Steinke Beyer, Inc.

Engineering and Scientific Services

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Roman R. Beyer

Specialized Professional Competence

Failure analysis of mechanical systems. Accident investigation and reconstruction. Human factors, ergonomics, safety design reviews and failure prevention methods. Automation, robotics, and microprocessor applications. Warnings and safety information analysis and development.

Background and Professional Honors

B.S. (Mechanical Engineering), **The University of Michigan** 1977

M.S. (Mechanical Engineering), **Stanford University** 1980

Registered **Professional Mechanical Engineer, California #M24827**

Registered **Professional Engineer, Michigan 32962**

Principal, **Steinke Beyer, Inc.**, 1995 onwards

Failure Analysis Associates, Inc., Menlo Park, CA

Managing Engineer, Human Performance and Mechanical Engineering, 1990 to 1995

Senior Engineer, Human Performance and Risk Analysis, 1986 to 1990

Consultant, 1983 to 1986

Senior Engineer, Accident Reconstruction and Failure Analysis, 1982 to 1983

Engineer, Design Analysis, 1980 to 1982

Structural Dynamics Research Corp., Cincinnati, OH

Project Engineer, Design responsibility, 1979

Technical Consultant, 1978 to 1979

Climax Molybdenum Company of Michigan, Ann Arbor, MI, Technician, 1976

The University of Michigan, Research Assistant, 1976

Full Member: American Society of Mechanical Engineers, Society of Automotive Engineers, The Tire Society, Human Factors and Ergonomics Society, National Society of Professional Engineers, American Society of Safety Engineers, The Society of Forensic Engineers & Scientists

Publications

- *Standards reviewer ANSI/NGCMA Z130.1-2004 for Golf Cars – Safety and Performance Specifications, Z135-2004 for Personal Transport Vehicles – Safety and Performance Specifications, July 2004.*
- *Safety evaluation of weightlifting apparatus*, Proceedings of the 48th Annual Meeting of the Human Factors and Ergonomics Society, 2004 (with Ayres et al.).
- *Ergonomics and the Treatment Plant, Operation Forum*, Vol. 12, 1995 (w/ T. J. Ayres and C. T. Wood).
- *The Warning Label Development Process*, ErgoCon '95, The Silicon Valley Ergonomics Conference & Exposition, San Jose, California, May 1995 (Abstract, with T. J. Ayres).
- *Applying Basic Principles of Human Factors and Ergonomics*, 67th Annual Conference and Exhibition of the Water Environment Federation, Technical Paper No. 947801, Chicago, Illinois, October 1994 (with T. J. Ayres and C. T. Wood).
- *Ergonomic Analysis of Extension Ladders*, Proceedings, Human Factors and Ergonomics Society Annual Meeting, 1994 (with R. L. McCarthy et al.).
- *Analysis of Accident Data and Fatal Risk for Occupational Use of Extension Ladders*, Proceedings, Human Factors and Ergonomics Society Annual Meeting, 1994 (with C. T. Wood et al.).
- *Effectiveness of Truck Backup Alarms*, American Trucking Association Safety Management Council, 1994 National Meeting and Exhibition (with T. J. Ayres).
- *Behavioral Effectiveness of a Truck-Tire Warning Label*, Human Factors and Ergonomics Society Annual Meeting, 1993 (with J. N. Robinson et al.).

Roman R. Beyer, P.E. - Resume

- *The 'Funny Spare': An Examination of Risks and Benefits*, American Society of Mechanical Engineers Winter Annual Meeting, New Orleans, LA, December 1993 (with A. C. Donelson et al.).
- *Do Subjective Ratings Predict Warnings Effectiveness?*, Human Factors Society Annual Meeting, 1990 (with T. J. Ayres et al.).
- *What is a Warning and When Will it Work?*, Proceedings, Human Factors Society Annual Meeting, 1989 (with T. J. Ayres et al.). Reprinted in *Human Factors Perspectives on Warnings*, K. R. Laughery, M. S. Wogalter and S. L. Young, eds., pp 1-5, Human Factors and Ergonomics Society, 1994.
- *Measured Impact of a Mandated Warning on User Behavior*, Proceedings, Human Factors Society Annual Meeting, 1987 (with G. E. McCarthy et al.).
- *Resistance Monitoring of Heat Tape*, Master's design project, Stanford University, June 1980.
- *Load-Deformation Relationships During Upsetting By Rotary Forging*, 1st International Conference of Rotary Metalworking Processes, London, England, November 20, 1979 (with R. E. Little).
- *Stress Concentration Factors for Stepped Hollow Shafts*, Symposium for the American Society of Mechanical Engineers, Vol. IV, September 1977 (lab work, G. Kurajian).

Invited Lectures

- *Engineering Disasters and Forensic Science*, Cañada College Learning Center, October 27, 2005.
- *Engineering Disasters and Forensic Science*, Cañada College Learning Center, October 19, 2004.
- *Products Liability in Design and Warnings*, Association of Defense Counsel of Northern California, San Francisco, California, December 2, 1999.
- *Use of Demonstrative Evidence*, Defense Research Institute, San Francisco, CA, Feb 10, 1999.
- *Human Factors Aspects of Power Tools*, Defense Research Institute, San Francisco, California, February 8, 1996.
- *Premises Liability: Preparation and Trial of a Difficult Case in California*, National Business Institute, Inc., San Francisco, California, June 1994.
- *Design Analysis of Extension Ladders*, ALI 1993 Spring Conference, American Ladder Institute, Scottsdale, Arizona, March 8, 1993.
- *Structural and Equipment Failure*, The Investigation and Prosecution of Workplace Deaths and Injuries, California District Attorneys Association, San Rafael, California, February 5, 1992.
- *Human Factors in Safety Management*, 1991 Health, Environment and Safety Conference, Marathon Oil Company, Houston, Texas, October 10, 1991.
- *Real-Time Safety Analysis for Robot Control*, University of California, Mechanical Engineering, Berkeley, May 5, 1990.
- *Real-Time Safety Analysis for Robot Control*, The American Society of Mechanical Engineers, San Francisco Section, March 12, 1987.
- *Human Factors and Product Liability*, Stanford University Mechanical Engineering Department, Design Divisions, March 25, 1987.
- *Hydraulic Robot Safety Systems*, Fluid Power Society, Bay Area Chapter, February 4, 1986.
- *Computer Failures*, Computer Law Association, New York, October 21, 1985.

Specialized Experience in Tires, Wheels, and Brakes

Roman R. Beyer has performed a wide range of work in the area of tire, wheel, and brake systems. His work includes numerous inspections, testing, failure analysis, accident reconstruction, and employee training on tires, wheels, and brakes related to trucks, passenger vehicles, motorcycles, off-road vehicles, recreational vehicles, and golf cars. He has testified as an expert witness in cases involving tread/belt separation, wheeltire balancing, tread wear, tire durability, tire mounting and demounting on both single-piece and multi-piece wheels, tire blowouts due to a multitude of causes, tire and wheel mismatch explosion, tire bead failure, brake failure, and brake pedal mis-application. He has also testified as an expert witness on driver response and vehicle handling in accidents involving tire disablements. He has conducted surveys and performed risk analysis related to tires, wheels, and brakes.