



MILLER ENGINEERING

2392 Fuller Court
Ann Arbor, MI 48105

www.millerengineering.com

888-206-4394 (toll free) or 734-662-6822

30 years of Engineering and Forensic Services



Miller

Lehto

Cook

VEHICLES:

Car / Truck Accident Reconstruction
Crash Data Retrieval (CDR)
Truck & Off Road Vehicle Egress / Ingress
Vehicle Speed Determination / Calculation
Traffic Signing and Control
Construction Zones

CHEMICALS, SDSs, & FIRE:

OSHA HazCom 2012 - GHS Review
SDS & Product Label Compliance
HazCom 2012 Employee Training
Labels & MSDS Work Product Examples
Fire & Explosion Investigations
Toxic Tort Litigations - Warnings
Chemical Exposure - Inhalation, Ingestion,
Eye, & Dermal
Contamination - Water & Environmental
Workplace Carcinogens - Diacetyl, Asbestos,
Benzene, Lead

MECHANICAL / ELECTRICAL SAFETY:

Machinery - Metal, Wood, Plastic Molding
Material Handling - Fork Lifts, Conveyors
Guarding & Entanglement
Electrical Distribution & Transmission
Hazards
Equipment Services & Maintenance
Static Electricity
Hazard & Risk Analysis

AGRICULTURE:

Tractor & Equipment Accidents
Chemical Applications & Exposures
Crop Storage & Harvesting Accidents

WORKPLACE SAFETY & CHEMICAL EXPOSURES:

OSHA Safety Compliance
Slips, Falls & Entanglements
Production / Process Line Accidents
Lockout / Tagout Accidents/Injuries

CONSTRUCTION:

Vehicle Visibility Accidents
Slips, Trips & Falls
Power Tool Repetitive Trauma & Accidents
Scaffolding - Cranes - Hoisting - Rigging
Personal Protective Equipment

RAILROADS and MINES:

Accident Investigations
Back Injuries
Train - Car Accidents
Explosions
Chemical Release

WARNINGS / INSTRUCTIONS:

Warning Labels & User Manual Design
Product Label Designs
Medical Device & Drug Warnings /
Instructions
Inadequate Warnings Analysis
Compliance with US & Global Standards
Product Recall Information & Strategies

CONSUMER / HOUSEHOLD SAFETY:

Appliances & Power Tools
Child Furniture, Choking and Playground
Swimming Pool and Exercise Equipment
Drug and Medical Warnings
Recreation - ATV, Boats, Bicycles
Ladder, Stairway & Walkway Falls
Restaurant, Retail & Merchandise Accidents

HUMAN FACTORS / ERGONOMICS:

Human Factors, Ergonomics & Biomedical
Engineering
Hospital Engineering & Clinical Nursing
Practices
Elderly Living Space Safety

INSURANCE SUBROGATION / FORENSICS:

Accident Investigations
Electrical and Fire Causation
Chemical Leakage or Exposure Damage
Defective Equipment Injuries
Premise Liability
Worker's Compensation

ENERGY:

Green / Alternative - Wind, Solar,
Hydroelectric
Mechanical / Electrical Energy System
Design
Miller Hydroelectric Power Facility

GRAPHIC CAPABILITIES:

2D & 3D Trial Exhibits
Accident Reconstruction

WHO WE ARE

President: James M. Miller, PE, PhD; Industrial and Operations Engineering, Emeritus Professor, University of Michigan

Co-Founder: Mark R. Lehto, PhD; Industrial and Systems Engineering, Professor, Purdue University

Managing Engineer: Bradley T. Cook, PE, MSE

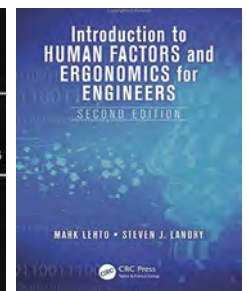
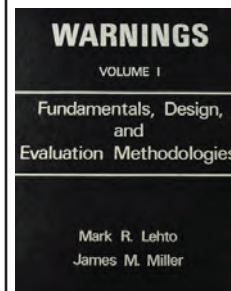
Staff and Support Engineers & Degree Areas:

Adam M. Olshove - Mechanical
Paul R. L. Miller - Mechanical
Elaina R. Reese - Materials Science
Kelley S. Lodge - Packaging, Safety & Health
David C. Clark - Mechanical / Electrical

WARNINGS - INSTRUCTIONS - ERGONOMICS BOOKS BY MILLER & LEHTO

James Miller & Mark Lehto have coauthored four books on the topic of warnings, instructions and labeling. Their first book *Warnings: Volume 1: Fundamentals, Design and Evaluation Methodologies* may have been the first scholarly book totally devoted to the topic of warnings.

In addition, Dr. Lehto authored the 2007 book: *Introduction to Human Factors & Ergonomics for Engineers*, a text book used in college classrooms and by practitioners across the country.

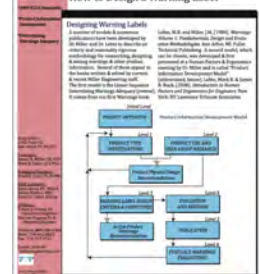


MILLER ENGINEERING TECHNICAL BULLETINS

- How to Design a Warning Label
- Automobile Accident Reconstruction
- Evaluating Compliance of Chemical Labels & SDS (OSHA, ANSI, & GHS)
- Implementing a Hazard Communication Program
- Occupational Exposure to Benzene
- Common Household Hazards for Children

MILLER ENGINEERING, INC.

TECHNICAL BULLETIN: How to Design a Warning Label





MILLER ENGINEERING

2392 Fuller Court
Ann Arbor, MI 48105

www.millerengineering.com

888-206-4394 (toll free) or 734-662-6822

30 years of Engineering and Forensic Services



Miller

Lehto

Cook

JAMES M. MILLER, PE, PhD

Dr. Miller is an Emeritus Engineering Professor at the University of Michigan and a registered mechanical professional engineer with over 30 years of experience. He has served as a consultant to industry and government and is highly qualified to give engineering testimony. He and his engineering staff specialize in: designing warnings, instruction manuals and labeling (including OSHA 2012 GHS requirements); auto and truck accident reconstruction; mechanical and electrical safety; fire, explosion and chemical process accident analysis; slip and fall prevention; marine, swimming and recreational vehicle accidents (boats, ATVs, and personal watercraft); farm accidents, and compliance with governmental and consensual safety standards (OSHA, CPSC, ANSI, ASTM, UL, ASABE, etc).

Dr. Miller has recently authored a chapter titled "Hazard Communication Compliance" in the American Society of Safety Engineering Safety Engineering Handbook. Dr. Miller has also authored five books on the topic of Warnings and Safety Instructions and written numerous journal articles. He is also currently a committee member of the ASTM Technical Committee F15 on Consumer Products.

Dr. Miller holds a B.S. in Mechanical Engineering and a Ph.D. in Industrial Engineering from Ohio State University, where he was one of the first US Ph.D. graduates to specialize in transportation and consumer accident research. He became a professor at the University of Michigan's Department of Industrial and Operations Engineering (IOE), where he taught courses in human factors / ergonomics, safety engineering, methods engineering, and law for engineers (1970-1998). On leave from the University at the U.S. Department of Labor (1975-1977), he was appointed as Special Assistant for Safety to OSHA's Assistant Secretary of Labor, where he had responsibility, among other things, for revising the OSHA General Industry (29 CFR 1910) and Construction (29 CFR 1926) Safety Standards. He also participated in the early formation of the OSHA HazCom standard (29 CFR 1200) and original MSDSs and chemical labels.

MARK R. LEHTO, PhD

B.S. in Industrial Engineering (1978), Oregon State University; M.S. in Industrial Engineering (1981), Purdue University; Ph.D. in Industrial and Operations Engineering (1985), The University of Michigan. Purdue University (1986-present): Associate Professor of Industrial Engineering. Commercial Boating (1965-1975).

Special Expertise: Knowledge engineering, warnings and instructions, structuring expert systems, accident modeling, accident statistical analysis, consumer product safety, boating safety, in-field national surveys of product usage and product information effectiveness.

BRADLEY T. COOK, PE, MSE (MSE - Biomedical, BSE - Mechanical)

Bradley is a registered professional engineer and consultant with extensive experience in accident reconstruction. He specializes in vehicular accident reconstruction and has investigated hundreds of vehicle accidents involving cars, trucks, pedestrians, bicyclists, motorcycles, etc. The investigations have involved issues of nighttime visibility and the downloading of crash data (black box data). He holds a Masters of Science in Biomedical Engineering from Purdue University and a Bachelor of Science in Mechanical Engineering from the University of Michigan.

Bradley has recently co-authored a chapter titled Occupational Health and Safety Management in the Handbook of Human Factors & Ergonomics. He is also currently a committee member of the Underwriters Laboratories (UL) Standards Technical Panel (STP) 2201: Engine, Generator Requirements and the ASTM Technical Committee E58 on Forensic Engineering.

Bradley also has experience in product safety and hazard analysis; occupational safety and health (OSHA) compliance; pedestrian and worker slip and fall prevention; investigation and reconstruction of industrial and consumer product accidents.

ADAM M. OLSHOVE, EIT, BSME (Mechanical Engineering)

Adam is a mechanical engineer whose projects at Miller Engineering have focused on the analysis of consumer product safety issues and industrial accidents. He has performed dozens of on-site investigations nationwide related to these projects. Under the direction of Dr. Miller, he has designed and developed numerous warning labels and instruction manuals, and has also led several large projects involving the analysis and reverse engineering of Material Safety Data Sheets.

He holds a Bachelor of Science in Mechanical Engineering from the University of Michigan, where he is also currently studying for a Master of Science in Mechanical Engineering with a focus on automatic control systems. He is expected to receive his degree in early 2019 and his Professional Engineering License in 2018. His past experience includes internships at Caterpillar, Inc. and Rhotech, Inc. both in 2011, and undergraduate research at the University of Michigan's Composite Structures Lab from 2009 to 2010.

KELLEY S. LODGE, MSE (MSE - Industrial, BSE - Packaging)

Master of Science in Engineering, Industrial Engineering (Occupational Safety and Health) (1993), The University of Michigan. Bachelor of Science in Engineering (1992), Michigan State University. Bachelor of Science in Packaging (1992), Michigan State University. Kraft Foods (1996-1997): Post Cereal Division, Package Premiums, Research Engineer. Ford Motor Company (1993-1996): Customer Service Division, Warehouse Supervisor. Pillsbury (1990): Packaging Summer Intern

Special Expertise: Child safety packaging. Competitive products packaging analysis. Hazard Communication and Right to Know Issues. Operator manual and label design: Electrician and chemical-resistant gloves, Air compressors, Traffic control barriers, Woodchippers, Stump grinders, Log splitters, Geothermal piping.

ELAINA R. REESE, MSE (Materials Science Engineering)

Elaina received her Bachelor of Engineering in Engineering Science from the State University of New York at Stony Brook (2013) and her Master of Science in Materials Science and Engineering from the University of Michigan (2016). Her previous work experience includes the U.S. Nuclear Waste Technical Review Board (2014), Kurion Inc. (2013), and the Pacific Northwest National Laboratory (2012).

PAUL R. L. MILLER, BSME (Mechanical Engineering)

B.S. in Mechanical Engineering, Michigan State University (2016). J M Miller Enterprises (2014-2016): Agricultural Systems Manager.

Special Expertise: Agricultural equipment, chemical application, and safety. Motorcycle design and safety. Heavy machinery design.