

Litigation Services & Information

Laurence "Lo" Lehman, P.E. Lehman Engineering Company

Lehman Engineering has been providing engineering, design, and consulting services for electrical power systems to electric utilities and industrial facilities since 1993. Specialties include System Protection (e.g. Relaying & Surge Suppression), Electrical Safety, Reliability and Maintenance technology.

Lehman Engineering also provides expert witness testimony, accident investigation, and consultation for cases involving electrical safety, electrocution, electrical contact, shock, injury, property damage and loss. Our services include rendering independent expert opinions, providing litigation support, and offering strategic advice to attorneys and clients, regarding the technical issues involving electrical failures, accidents, safety violations, negligence and incompetence.

As President of Lehman Engineering, Lo Lehman specializes in electrical power system studies, failure analysis, and equipment design for low, medium, and high voltage systems. Mr. Lehman is thoroughly knowledgeable and able to evaluate and assure compliance with the National Electrical Safety Code (NESC) and the National Electric Code (NEC). Mr. Lehman is a registered and licensed Professional Engineer, and is a highly skilled specialist with 27 years of experience. He is well qualified to offer expert opinions in a court of law in the field of utility and industrial electrical power systems.

I. Areas of Litigation Expertise

- Electrical Accidents, Incidents and Failures
- Electrocution and Electrical Contact
- Electrical Shock and Arc Flash Injuries
- Electrical Fire and Explosion (Hazardous Locations)
- Electrically Produced Falls, Slips, Trips, Injuries and Death
- Electrical Safety & Safe Work Practices
- National Electric Safety Code (NESC) Practices
- National Electric Code (NEC) Practices
- Clearances and Safety of Overhead Power Lines & Underground Facilities
- Design of Distribution, Substation & Transmission Systems
- Electric Utility (Power Company) Practices, Policies & Procedures
- Electrical Equipment Design, Failure & Malfunctions
- Power Quality, Reliability, and Maintenance Technology
- Electrical Surges, Lightning Protection, TVSS
- Service Interruptions, Outages, Blackouts, Brownouts
- Property Damage / Equipment Damage
- Product Liability - Design & Application

II. Expert Witness, Forensics, & Litigation Services

Forensic & Litigation Services for Attorneys (Plaintiff or Defense), Utilities, Manufacturers, Facilities, Insurance Companies, Individuals. Available to participate in Trial, Arbitration and Mediation cases, and as expert advisors empanelled by the court. No geographic limits in USA.

- Expert Witness Testimony at Deposition and Trial
- Articulate, Accurate, and Believable Testimony
- Trial Preparation & Trial Exhibit Services
- Forensic Engineering & Failure Analysis
- Engineering Assessment of Evidence
- Engineering Evaluation of Technical Merits of Case
- Electrical Accident Investigation and Accident Reconstruction
- Determination of Cause and Origin of Loss
- Electrical Code Compliance & Application (NESC, NEC, NFPA, OSHA)
- Review of Applicable Codes, Interpretations, Statutes, and Industry Standards & Practices
- Assistance In Case Development, Interrogatories, Depositions and Trial Questions
- Consulting To Determine Veracity of Allegations & Develop Strategies
- Technical Literature Research and Analysis
- Analysis of Findings and Opinion / Oral and Written Reports
- Thorough Documentation In Easy-To-Understand Language

III. Areas of Engineering Expertise

• ***Electric Power Distribution Systems:***

Electric Utility (T&D), Industrial, Manufacturing
Facilities, Hospital, Commercial, Residence
High Voltage, Medium Voltage & Low Voltage / AC & DC
Design, Construction, Operation, & Maintenance of Electric Power Systems
National Electric Safety Code (NESC) Practices
National Electric Code (NEC) Practices
Substation, Transmission & Distribution System Design (T&D)
Overhead Power Lines / Underground Distribution / URD
Overvoltage Protection (Lightning / Surge Suppression / TVSS)
Grounding: Systems, Equipment, Grids, SRG (ADP Rooms)

• ***Power System Studies:***

Short Circuit / Fault Calculations / Coordination
Relaying, Motor Starting, Voltage Drop, Flicker
Harmonics, Load Flow, Power Factor, Arc Flash Hazard
Network Grid System Modeling & Analysis
Engineering Economics / Cost Analysis

• ***Power Quality / Energy Management:***

Computer Grade / Clean Power
Energy Efficiency & Conservation
Demand Side Management

III. Areas of Engineering Expertise (*continued*)

- ***Reliability / Maintenance Technology:***

- PM, PdM, RCM, CBM, TPM
- Mission-Critical Facilities
- Data Centers & Server Farms
- Emergency & Standby Generation Systems

- ***Equipment Design:***

- Generators, Transformers, Motors, UPS's, Cable
- Reclosers, Breakers, Sectionalizers, Relays, Fusing
- Switchgear, Panelboards, Capacitors, Filters, Arresters
- Wiring, Splices, Connectors, Pole-Line Hardware

- ***Quality Assurance & Control:***

- Plant Inspections, Surveillance, and Audits
- Material Receipt Inspections
- QA/QC Procedures Designed and Implemented
- Project Management

IV. Equipment & Products

Lo Lehman has the qualifications to render expert opinion on the following types of equipment and products, which may have caused or be a contributing factor to electrical accidents, fires, explosions or electrocution. Any aspect concerning the design, specification, construction, application, operation, use of, and maintenance of the following equipment can be addressed.

- Electric Power Overhead Lines & Poles
- Primary, Secondary & Service / Service Entrance
- Underbridge & Outdoor/Indoor Installations
- Underground Lines & Padmounted Equipment
- Transformer Vaults, Trenches, Duct Bank
- Generators, Transformers, Motors, Motor Controls (MCC)
- Switchgear / Switches / Switchboards
- Automatic Transfer Switches
- Protective Relays, Fuses, Fusing Components, CT's
- Circuit Breakers, Reclosers, Sectionalizers
- Power Distribution Panels / Panelboards / Load Centers
- Wire, Cable, Conductor, Splices, Connectors
- Wiring Accessories & Components
- Lightning & Surge Protection
- Arresters and Surge Suppressors (TVSS)
- Voltage Regulators
- Uninterruptible Power Supplies (UPS) / Power Conditioners
- Capacitors, Inductors, Filters
- Electromechanical / Rotary Equipment

IV. Equipment & Products (*continued*)

- Variable Speed Drives / Adjustable Frequency Drives
- Electrical Appliances and Apparatus
- Pole-Line Hardware

V. Sample Cases

Following is a summary of the cases in which Mr. Lehman has provided litigation support, expert witness testimony or proximate cause determination:

- A sailboat mast comes into contact with overhead primary power lines located over a recreational water crossing, electrocuting and killing the boater. Utility fusing misoperates causing back-up circuit recloser to operate multiple times. Utility was found to be negligent in maintaining clearances across navigable waters.
- Electrocutation from fallen power line: Resident is electrocuted and killed when he steps barefoot onto a downed, energized conductor laying on his front yard property. A dump truck had caught and contacted a power line when its dumping bed is left in the upright position. The mechanical stress on the pole line causes short-circuits and two overhead conductor to fail; circuit recloser is alleged to have misoperated. Accident reconstruction was successfully performed, the root cause of the failure was determined (a connector that was improperly installed had caused overheating and melting of the fallen conductor), and the technical merits of the case was won for the Plaintiff against a major utility company.
- Property damage is alleged to have occurred in a homeowner's residence, coincident with a distant failure of a electric utility company's facilities. A primary high voltage line falls and comes into contact with an "underbuilt" lower primary voltage line, and is alleged to have induced high voltage into a residence. It was proved that induced voltage would not have caused the damage claimed by homeowner.
- During a distant fault on a circuit serving a major newspaper printing plant, a sectionalizer was thought to have misoperated. It was proved that the sectionalizer worked correctly, relieving utility company of any culpability.
- A worker for a national tree trimming company receives injuries from making electrical contact with high voltage line with a broken and downed (yet energized) neutral, while working from an insulated aerial lift truck. (Neutral had broken and fallen onto trees). Plaintiff was shown conclusively to have been negligent in not following safe work practices.
- An overloaded extension cord (not sized for the job intended and in poor shape) installed in home residence causes fire.
- A fire is thought to be caused by faulty portable heater in residence. Plaintiff was shown to be negligent. (Plaintiff had actually stuffed a pair of pants into heater!)

V. Sample Cases (*continued*)

- An industrial facility fire occurs when a utility company changes a transformer fuse. Facility had defective breaker which caused the fire (The utility was proven not to be negligent).
- A primary voltage underground cable comes into contact with secondary cables causing electrical damage to residence. Plaintiff awarded significant damages (Major utility company loses case.)
- Accident reconstruction to determine clearances on utility pole after truck comes into contact with overhead conductors. Pole had been removed and it was necessary to determine Sag & Tensions and Clearances using the length of the pole and measuring distance between hardware mounting holes and burial depth.
- Alternate design routes (within NESC Code compliance) for direct buried underground cable are determined for cost comparisons in Eminent Domain Condemnation case. Successfully challenged the quoted cost of relocating electric utility lines.
- Fire Investigation (with an insurance company) and Accident Reconstruction performed to determine electrical origin of fire in a tire retread plant.

VI. Contact Information

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