SEMKE FORENSIC
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St. Louis
154 Hughes Lane
St. Charles, MO 63301
T 636.896.9995

CURRICULUM VITAE OF TIMOTHY B. DUGAN, P.E.

November 2026

I. General Information

A. Position: Senior Electrical Engineer
Semke Forensic
154 Hughes Lane
St. Charles, Missouri
Telephone: 636-896-9995

II. Professional Summary

A. Education: Bachelor of Science
Electrical Engineering
University of Missouri
Columbia, Missouri
1999

B. Experience:

March 2021 to Present
Position: Senior Electrical Engineer
Semke Forensic
154 Hughes Lane
St. Charles, Missouri

Responsible for electrical engineering projects including failure analysis of components and equipment to determine their role in an event or fire, evaluation of electrical shock and electrocution incidents, assessment of electrical equipment damage due to lighting strikes or water intrusion, and review of electrical designs and installations for construction defects.

September 2019 to February 2021
Position: Chief Electrical Engineer
Industrial Ally, Inc.
Chesterfield, Missouri

Primary engineering duties and responsibilities: Electrical project lead engineer for industrial projects, studies, and capital cost estimates. Conceptual, basic/front-end, and detailed engineering design of industrial cement manufacturing plants: preparation of electrical P&ID's, one-lines, schematics, electrical plans, cable tray layouts, raceway/cable schedules, equipment specifications, and capital cost estimates.

Secondary duties and responsibilities: electrical engineering department budgeting, planning, and scheduling; development of preliminary scopes of work; monitoring of project deliverable status; technical leadership, assistance, and mentoring of departmental staff.

August 2017 to September 2019
Position: Electrical Engineer
Semke Forensic
154 Hughes Lane
St. Charles, Missouri

Responsible for electrical engineering projects including failure analysis of components and equipment to determine their role in an event or fire, evaluation of electrical shock and electrocution incidents, assessment of electrical equipment damage due to lighting strikes or water intrusion, and review of electrical designs and installations for construction defects.

May 2008 to July 2017
Position: Chief Electrical Engineer & Electrical Department Manager
(May 2009 to July 2017)
Penta Engineering Co. LLC
St. Louis, Missouri

Position: Assistant Electrical Department Manager
(May 2008 to April 2009)
Penta Engineering Co. LLC
St. Louis, Missouri

Primary engineering duties and responsibilities: Electrical project lead engineer for industrial projects, studies, and capital cost estimates. Conceptual, basic/front-end, and detailed engineering design of industrial cement manufacturing plants: preparation of electrical P&ID's, one-lines, schematics, electrical plans, cable tray layouts, raceway/cable schedules, equipment specifications, and capital cost estimates. Field services for industrial cement plants/terminals: duties included process automation and programming procurement, equipment commissioning, startup assistance, and client/contractor interface.

Secondary duties and responsibilities: electrical engineering department budgeting, planning, and scheduling; development of preliminary scopes of work; monitoring of project deliverable status; technical leadership, assistance, and mentoring of departmental staff.

August 2007 to April 2008
Position: Electrical Engineer
BIS Frucon Engineering, Inc.
Ballwin, Missouri

Electrical Engineer responsible for design review and checking for various Cement Industry projects in both Missouri and Florida.

Project Engineer responsible for medium voltage power distribution design for new 4,650stpd cement kiln line. Project included medium voltage (5kV) feeder sizing and underground distribution infrastructure design from main 4000A switchgear to each process department electrical room, via new underground conduit ductbank system complete with pre-cast concrete manholes.

March 2000 to July 2007
Position: Electrical Engineer
Penta Engineering Corp.
St. Louis, Missouri

Electrical Project Lead for Cement Industry Projects, 2002 – 2007.
Responsible for major project electrical designs including the following: contractor construction and bid drawing packages, electrical equipment and instrumentation specifications, overall management of electrical design, and checkout/startup assistance as needed.

Electrical Project Engineer for Cement Industry Projects, 2000 – 2002.
Direct responsibility for preparation of construction documents including P&ID's, one-lines, schematics, plans, risers, schedules, and miscellaneous detail drawings. Responsible for automation and field checkout/startup assistance for design-build cement terminal projects, including ladder logic PLC programming and graphics development for HMI touch-screen displays utilizing Allen-Bradley SLC's, PLC's, and PanelView Terminals.

June 1999 to January 2000

Position: Maintenance Advisor – Body Shop
General Motors Truck Group
Wentzville, Missouri

Performed first-line shift supervision of maintenance personnel. Responsible for the effective use of personnel, equipment, and material to meet production schedule while maintaining high quality standards for GMT600 van production. Responsible for the timely maintenance of tooling, robots, welders, sealers, and other automated equipment associated with product manufacturing. Performed electrical and mechanical troubleshooting, as well as manpower assignments and overtime scheduling.

III. Seminars and Technical Courses Attended

1996 – Electrical Overcurrent Protection – IEEE Fall MoCon, St. Louis, Missouri
2000 – Understanding Motor Controls – St. Louis Electrical Board
2000 – Programmable Logic Controllers I – St. Louis Electrical Board
2001 – New Miner Training – Mine Safety and Health Administration (MSHA)
2002 – Beginning & Intermediate Visual Basic – University of Missouri St. Louis
2002 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2003 – Understanding the National Electrical Code – St. Louis Community College
2003 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2004 – Adv. Electrical Overcurrent Protection – IEEE MoCon, St. Louis, Missouri
2004 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2005 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2006 – System Reliability Seminar – Square D, St. Louis, Missouri
2006 – IEEE-IAS/PCA Cement Industry Technical Conference – IEEE, Phoenix, Arizona
2006 – SKM Systems Analysis Standard & Advanced Training Courses
2006 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2007 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2008 – Grounding of Electrical Systems – Electrical Board of MO & IL (EBMI)
2008 – Firestopping – Electrical Board of MO & IL (EBMI)
2008 – Arc Flash Hazard Overview – Electrical Board of MO & IL (EBMI)
2008 – Analysis of Changes 2008 NEC – Electrical Board of MO & IL (EBMI)
2008 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2009 – Energy Management Seminar – Square D, St. Louis, Missouri
2009 – Arc Flash Hazards and NFPA 70E 2009 – Eaton, St. Louis, Missouri
2009 – Power Factor and Harmonics – Eaton, St. Louis, Missouri
2009 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2010 – UPS 101 – Eaton, St. Louis, Missouri
2010 – Energy Management / Safety / Power Reliability Solutions / Protecting Sensitive Equipment – Eaton, St. Louis, Missouri
2010 – Surge Protection – Eaton, St. Louis, Missouri

2010 – Photovoltaic Systems Design – Eaton, St. Louis, Missouri
2010 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2011 – Power Quality Grounding – Eaton, St. Louis, Missouri
2011 – IEEE-IAS/PCA Cement Industry Technical Conference – IEEE, St. Louis, Missouri
2011 – Grounding – Eaton, St. Louis, Missouri
2011 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2012 – Harmonics & Energy Efficiency – Eaton, St. Louis, Missouri
2012 – Protection of Electrical Systems – Electrical Board of MO & IL (EBMI)
2012 – Arc Flash Calculations Processes & Pitfalls – Electrical Board of MO & IL (EBMI)
2012 – General Power Quality – Eaton, St. Louis, Missouri
2012 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2013 – Overcurrent Protection – Eaton / Cooper Bussmann, St. Louis, Missouri
2013 – Introduction & Intermediate Applications of MS Project – University of Missouri St. Louis
2013 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2014 – Electrical Testing Equipment – Electrical Board of MO & IL (EBMI)
2014 – How Different Equipment Types Affect Arcing Faults – Electrical Board of MO & IL (EBMI)
2014 – Analysis of Changes 2014 NEC – Electrical Board of MO & IL (EBMI)
2014 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2014 – Advanced Electrical Overcurrent Protection – IEEE Spring MoCon, St. Louis, Missouri
2015 – Power Quality / Integrated Equipment / Selective Coordination – Square D, St. Louis, Missouri
2015 – Transformers Regional Technical Seminar – SPX Waukesha, St. Louis, Missouri
2015 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2016 – A Fresh Perspective on Power System Studies – Eaton, St. Louis, Missouri
2016 – Grounding vs. Bonding, 2014 NEC Art. 250 – MikeHolt.com
2016 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2017 – Arc Flash Awareness – Electrical Board of MO & IL (EBMI)
2017 – Life After 12,500 Volts – Electrical Board of MO & IL (EBMI)
2017 – Electrical Equipment Preventative Maintenance – Electrical Board of MO & IL (EBMI)
2017 – Analysis of Changes 2017 NEC – Electrical Board of MO & IL (EBMI)
2017 – Equipment SCCR & Selective Coordination – Eaton / Cooper Bussmann, St. Louis, Missouri
2017 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2018 – Fire & Arson Conference – IAAI, Missouri Chapter, Springfield, Missouri
2018 – Investigation of Gas and Electric Appliance Fires – Fire Findings
2019 – Fire & Arson Conference – IAAI, Illinois Chapter, Caseyville, Illinois
2020 – Annual Refresher – Mine Safety and Health Administration (MSHA)
2020 – The Do's and Don'ts of Specifying Lightning Protection Systems – Electrical Board of MO & IL (EBMI)

2020 – Critical Power Systems – Electrical Board of MO & IL (EBMI)
2020 – Grounding of Electrical Systems – Electrical Board of MO & IL (EBMI)
2020 – Analysis of Changes 2020 NEC – Electrical Board of MO & IL (EBMI/IAEI)
2020 – SKM Systems Analysis Power System Applications – Protection & Coordination
2020 – SKM Systems Analysis, Power System Applications – Arc Flash Evaluation
2021 – Fire & Arson Conference – IAAI, Missouri Chapter, Springfield, Missouri
2021 – Fire & Arson Conference – IAAI, Illinois Chapter, Caseyville, Illinois
2022 – Fire & Arson Conference – IAAI, Missouri Chapter, Springfield, Missouri
2023 – NFPA-70E 2021 – Electrical Safe Work Practices Seminar
2023 – Analysis of Changes 2023 NEC – Electrical Board of MO & IL (EBMI/IAEI)
2024 – Fire & Arson Conference – IAAI, Missouri Chapter, Springfield, Missouri
2025 – Fire & Arson Conference – IAAI, Illinois Chapter, Belleville, Illinois
2026 – Fire & Arson Conference – IAAI, International, St. Louis, Missouri
2026 – Fire & Arson Conference – IAAI, Missouri Chapter, Springfield, Missouri

IV. Professional Affiliations

Institute of Electrical and Electronics Engineers (IEEE)
International Association of Arson Investigators (IAAI)
International Association of Arson Investigators (IAAI) – Illinois Chapter
International Association of Arson Investigators (IAAI) – Missouri Chapter
National Association of Fire Investigators (NAFI)

V. Professional Registration

Registered Professional Engineer in the States of Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Minnesota, Missouri, Oklahoma, Pennsylvania, Utah, and Wisconsin

VI. Presentations

1. Timothy B. Dugan, P.E. "Reducing The Flash Hazard" presented at the following conferences:

   - IEEE-ISA/PCS Cement Industry Technical Conference – April 2006, Phoenix, Arizona

   - IEEE-IAS/PCA West Coast Subcommittee Technical Conference – September 2007, San Antonio, Texas

2. Timothy B. Dugan, P.E., and Jack L. Nevins. "Electrical Concepts At The Fire Scene" presented to the Olathe Fire Department, Community Risk Reduction Section, 4-Hour Public Investigator Training Seminar, Olathe, Kansas – August, 2023.

3. Timothy B. Dugan, P.E., and Daniel J. Sovar, P.E. "Electrical and Fuel-Fired Appliance Fire Causes" presented to Brinker & Doyen, LLP, 1-Hour CLE Training Seminar, St. Charles, Missouri – May, 2024.

4. Timothy B. Dugan, P.E. "Electrical Concepts And Causes At The Fire Scene" presented to the Jefferson County Fire Marshals Association, 4-Hour Public Investigator Training Seminar, High Ridge, Missouri – September, 2025.

VII. Publications

Timothy B. Dugan, P.E., "Reducing The Flash Hazard," in *IEEE-IAS/PCA 2006 Cement Industry Technical Conference Record*, April 2006.