



Curriculum Vitae

Steve Hamilton, P.E., IAAI-FIT, CFEI
Electrical Engineer

Professional Practice

Steve Hamilton is an accomplished Electrical Engineer with more than 29 years of experience in electrical engineering and information technology. His engineering experience spans areas of design, power systems and electromagnetic interference modeling and analysis, construction support, construction compliance assessment, and mining engineering. In addition, he has experience in testing and failure analysis of insulation systems, electric motors and power transmission. Steve has experience working with attorneys, government agencies, contractors, and end-users to determine their needs and tailor a customized solution.

Employment History

Electrical Engineer – Crane Engineering

Plymouth, MN • 2014 - Present

Specializes in risk assessment and failure analysis, malfunctions and incidents involving electrical systems and equipment. Helps clients interpret and apply the National Electrical Code (NEC/NFPA 70) and other electrical codes and standards. Assists clients with investigations due to fires and accidents with possible electrical causes. He also applies his experience to clients' issues including material selection and processes. Provides consulting on electrical damage caused by flooding, fire or other types of exposure. Serves clients in insurance subrogation matters and litigation involving the failure of electrical systems.

Senior Systems Engineer – LTK Engineering Services

Minneapolis, MN • 2007 - 2014

Implemented design and construction aspects of traction power and systemwide electrical for light rail train systems. Designed and modeled an electromagnetic mitigation system for light rail; defended design under peer review. Developed and executed light rail electromagnetic test protocol. Failure analysis and technical report writing for light rail power systems. Software development for design calculations and informational exhibits. Design oversight of specialty systems (Flat Wheel Detection, Vibration Monitoring).

Engineering IT Project Manager – Cummins, Inc.

Fridley, MN • 2006-2007

Provided IT solutions for engineering groups worldwide. Managed off-shore talent for solution development.

Insulation/Electrical Design Engineer – Electric Machinery Company, Inc.

Minneapolis, MN • 2004 - 2006

Designed large induction and synchronous motors and generators. Developed, tested and specified insulation materials. Conducted complex failure analysis and provided manufacturing support on insulation issues. Researched and procured specialized manufacturing and testing equipment. Key roles in research and development of new product lines.

Business Manager – Cutsforth Products, Inc.

Grand Rapids, MN • 2003-2004

Lead officers of specialty manufacturing company through business planning process. Created inventory system; automate business processes with MS Office applications. Provided design engineering and fault analysis for product line and customer owned equipment. Installed products in the field. Liaison to community development organization.

Principal IT Specialist/Supervisor – Hennepin County

Minneapolis, MN • 1997-2003

Supervised IT staff supporting over 1000 computer users. Developed IT business cases for presentation to management. Developed applications in Lotus Notes, Microsoft Access and Visual Basic. Installed, repaired and replaced computer hardware and software. Managed life-cycle of computer equipment for over 2000 installations including inventory, cost/benefit analysis and budget. Investigated and implemented new technologies for increased productivity. Core team member of Balanced Scorecard initiative and Innovation Team Leader.

Service Engineer – Electric Machinery Company, Inc.

Minneapolis, MN • 1996-1997

Coordinated field service engineers for warranty, start-up, and service support. Provided technical support for field engineers, customers and sales force. Prepared quotes and work definitions for refurbishment of in-service equipment. Modernized database for tracking/analysis of warranty expenses and problem coding. Revised and maintained all Product Service/Aftermarket ISO 9001 procedures.



Equipment Management Engineer – General Electric

Grand Rapids, MN • 1994-1996

Predictive and preventive maintenance of 5000 motors at Blandin Paper Company. Developed repair specifications for motors. Performed vibration analysis, thermography and other electrical tests on motors, generators, drives, switchgear, fans and pumps. Recommended equipment and maintenance procedures by utilizing database information and failure analysis results.

Product Service Engineer – General Electric

Erie, PA • 1990-1994

Administered warranties, on-site trouble shooting and repairs of equipment, and improvement of product design. Developed a database for tracking warranty expenses and problem coding. Assembled and tested motors. Revised instruction manuals for several product lines. Developed and maintained many ISO 9001 procedures used to achieve certification. Performed product maintenance training seminars for customers. Failure analysis of motors and generators. Installation, commissioning and repair of mining equipment.

Power System Engineer – General Electric

St. Louis, MO • 1988-1990

Performed power system fault analysis, short circuit studies, protective coordination and substation design.

Heavy Equipment Mechanic – Monroe Leasing & Transportation

Columbia, IL • 1984-1988

Routine service, repairs and complete overhaul of over-the-road diesel tractors and trailers. Construction support of large maintenance truck shop.

Chief Bench Chemist – Bitucote Products

St. Louis, MO • 1980-1984

Quality control, research and development and field application responsibilities for asphalt emulsion company. Training of other lab technicians.

Welder – Luhr Bros Construction Company

Columbia, IL • 1978-1979

Welder for construction company's ship-building division. Building new barges and repair of damaged ones. Maintenance welding on heavy equipment.



Professional Licenses

Licensed Professional Engineer

Minnesota and Montana

NAFI Certified Fire and Explosion Investigator (CFEI)

IAAI Certified Fire Investigation Technician (IAAI-FIT)

Professional Affiliations

National Association of Fire Investigators (NAFI) – Member

Minnesota Chapter of the International Association of Arson Investigators (MNIAAI) – Member

International Association of Arson Investigators (IAAI) – Member

IEEE – Senior Member

Pennsylvania State Police Reserve, Harrisburg, PA, 1993

Awards

Hennepin County EA Star Award for technology innovation, 2003

General Electric Technical Presentation Award, 1990

6 General Electric Managerial Awards for work above and beyond the call of duty, 1992-1993

Education

B.S., Electrical Engineering, Southern Illinois University, Edwardsville, IL, 1989

M.S., Management of Technology, University of Minnesota, Minneapolis, MN, 2003

Continuing Studies

Ethical Implications of Working with Engineering Experts, Crane Engineering, Plymouth, MN, 2018

Investigating & Litigation of Fire & Explosion Losses, Twin Cities Claims Association, Bloomington, MN, 2018

Ethics for Professional Engineers, Ezekiel Enterprises, LLC, 2018

Ethics and the Fire Investigator, IAAI Webinar, 2017

The Practical Application of the Relationship between NFPA 1033 and NFPA 921, IAAI Webinar, 2017

40-Hour Fundamentals of Fire Investigation, Huntsville, AL, 2017



Understanding Fire through the Candle Experiments, IAAI Webinar, 2017
Fire Investigator Scene Safety, IAAI Webinar, 2017
The Scientific Method for Fire and Explosion Investigation, IAAI Webinar, 2017
MN IAAI Burn to Learn Seminar, Eveleth, MN, 2017
Investigating Motor Vehicle Fires, IAAI Webinar, 2017
Social Media Investigation, St. Cloud, MN, 2017
Serial Arsonist / Complex Fire Scene Investigation, St. Cloud, MN, 2017
16 Topics of NFPA 1033, Negative Corpus, St. Cloud, MN, 2017
16 Topics of NFPA 1033, St. Cloud, MN, 2017
Uses & Abuses of NFPA 921, St. Cloud, MN, 2017
Case Law Developments, St. Cloud, MN, 2017
Public/Private Interaction, St. Cloud, MN, 2017
Digital Evidence, St. Cloud, MN, 2017
Introduction to Lighting Control Equipment, Lighting Control, 2017
Introduction to Lighting Controls, Lighting Control, 2017
Wood Stove Fires, St. Cloud, MN, 2016
Vehicle System Forensics, St. Cloud, MN, 2016
Vehicle Fire Investigations, St. Cloud, MN, 2016
Fire Protection Systems, St. Cloud, MN, 2016
Explosion Dynamics, St. Cloud, MN, 2016
Codes & Standards in Investigations, St. Cloud, MN, 2016
Electrical Origin Fires, St. Cloud, MN, 2016
Rules for Photography, St. Cloud, MN, 2016
Lighting and Fires, St. Cloud, MN, 2016
CFI Trainer Online, St. Cloud, MN, 2016
OSHA at Fire Scenes, St. Cloud, MN, 2016
ASTM Standards, St. Cloud, MN, 2016
Cloud Based Apps for Collaboration, St. Cloud, MN, 2016
Drone Use in Fire Investigation, St. Cloud, MN, 2016
NFPA 1033, St. Cloud, MN, 2016



Engineering Ethics, Plymouth, MN, 2016

Forensic Investigations of Electrical Infrastructure, UWM, Webinar, 2015

NFPA 1033 and Your Career, IAAI, Webinar, 2015

Understanding the Daubert Challenge, NAFI, Webinar, 2015

Arson Case Review, NAFI, Dallas, TX, 2015

Basic Electricity for Fire Investigation, NAFI, Dallas, TX, 2015

Legal Considerations, NAFI, Dallas, TX, 2015

Depth of Calcination, NAFI, Dallas, TX, 2015

Origin, NAFI, Dallas, TX, 2015

Photography, NAFI, Dallas, TX, 2015

Diagramming the Scene, NAFI, Dallas, TX, 2015

Heat & Flame, NAFI, Dallas, TX, 2015

Fire Dynamics & Patterns, NAFI, Dallas, TX, 2015

Fire Chemistry & Dynamics, NAFI, Dallas, TX, 2015

NFPA 921 & 1033, NAFI, Dallas, TX, 2015

Certified Fire & Explosion Investigator Training, NAFI, Dallas, TX, 2015

Honeywell IP Communications & Fire Alarm System Monitoring, Fire-Lite Alarms, Bloomington, MN, 2015

Honeywell Wireless Fire Alarm Technology, Fire-Lite Alarms, Bloomington, MN, 2015

Honeywell Fundamentals of Power Supplies, Fire-Lite Alarms, Bloomington, MN, 2015

Honeywell Intelligent Fire Alarm Control Panels, Fire-Lite Alarms, Bloomington, MN, 2015

40 Hour Site Worker Training (Hazwoper), Minneapolis, MN, 2015

Arc Flash Hazard Analysis, Studies, and Report Generation, Webinar, 2014

Data Collection & Developing the One-Line for Arc Flash, Webinar, 2014

Thermal Conductive Materials to Improve Motor Efficiency, Webinar, 2014

Lessons in Lighting, AIA, Webinar, 2014

Ethics and Social Media, IAAI, Webinar, 2014

The Hazwoper Standard, IAAI, Webinar, 2014

Critical Thinking Solves Cases, IAAI, Webinar, 2014

Fire Protection Systems, IAAI, Webinar, 2014



Using Resources to Validate Your Hypothesis, IAAI, Webinar, 2014
Explosion Dynamics, IAAI, Webinar, 2014
Digital Photography and the Fire Investigator, IAAI, Webinar, 2014
The Scientific Method for Fire and Explosion Investigation, IAAI, Webinar, 2014
Documenting the Event, IAAI, Webinar, 2014
Residential Electrical Systems, IAAI, Webinar, 2014
Fire Dynamics Calculations – Version 2.0, IAAI, Webinar, 2014
NFPA 921 & 1033. An Introduction and Update, Hughes Associates, Webinar, 2014
Arc Mapping Basics, IAAI - Webinar, 2014
National Instruments Labview Training, Minneapolis, MN, 2014
Seal Coat Operations: Workshop for Practitioners, Mankato, MN, 2014
Audio Engineering at Institute of Production and Recording, Minneapolis, MN, 2013-2014
Rail Noise and Vibration, Minneapolis, MN, 2013
Ethical Issues for Engineers, Minneapolis, MN, 2012
Expert Witness Seminar – SEAK, Falmouth, ME, 2012
Deposition Skills Workshop, Falmouth, ME, 2012
21st Annual Expert Witness Conference, Falmouth, ME, 2012
Expert Report Writing Workshop, Falmouth, ME, 2012
OSHA 10: Construction Safety and Health, St. Paul, MN, 2012
Trackwork, Training, Minneapolis, MN, 2012
System Engineering Workshop – INCOSE Seminar, Minneapolis, MN, 2010-2011
Power System Grounding Seminar, Davenport, IA, 2009
Polymer Chemistry for Engineers, Indianapolis, IN, 2005
Lotus Notes design, security, workflow, Benchmark Training, Edina, MN, 2001-2003
Database Theory, Normandale Community College, Bloomington, MN, 1999
Network fundamentals, University of MN, 1998
Programming Access 97, St. Paul Technical College, St. Paul, MN, 1997
Visual Basic, advanced MS Access, NT administration Benchmark Training, Edina, MN, 1997-2001
Advanced Vibration Analysis, Duluth, MN, 1994
GE Field Engineering Program, Schenectady, NY, 1990



GE Motor Maintenance School, Erie, PA, 1990

Mining Engineers Seminar, Erie, PA, 1990

National Electric Code Course, St. Louis, MO, 1989

Presentations

Failures in Construction Vehicles & Heavy Equipment, National Association of Subrogation Professionals (NASP), Scottsdale, AZ, 2017

Ten Common Design Errors, Minnesota Health Care Engineers Association, Hinkley, MN, 2016

Substation and Transformer Fundamentals, League of Minnesota Cities, St. Paul, MN, 2016

Unintended Consequences of Green Design, National Association of Subrogation Professionals (NASP), Webinar, 2016

Changes to the Minnesota Building & Commercial Energy Code, North Central Electrical Engineers Society, Bloomington, MN, 2015

Thawing Frozen Water Services with Electricity, National Association of Subrogation Professionals (NASP), Bloomington, MN, 2015

Magnetic Interference from Light Rail, Minnesota Reliability Consortium, Plymouth, MN, 2015

Forensic Engineering and Occupational Injuries, Health Partners, St. Paul, MN, 2015

Excel Engineering Conference, Shoreview, MN, 2013

APTA Conference, Chicago, IL, 2009

Publications

S.M. Hamilton, Electromagnetic Mitigation of Quasi-Static Fields, APTA Conference, Chicago, IL, 2009

