

PAUL ZAMROWSKI ASSOCIATES, INC.
550 DEER POINTE ROAD • WEST CHESTER, PA 19382
Voice (610) 353-5595 • Fax (610) 356-2365 • Email: Zamrowski@aol.com

PATRICK McKENNA, P.E., CFEI
ELECTRICAL ENGINEER

CURRICULUM VITAE

EXPERIENCE

Electrical Engineer

Over 29 years of electrical engineering and design experience in the pharmaceutical, biotechnology, chemical, and hydro-carbon industries. Responsibilities included engineering office manager, electrical engineering department manager, project management, and lead electrical engineer performing tasks such as project schedules, costs analysis, cost estimates, design man-power estimates, electrical studies, design functions, field surveys, construction supervision, start-up, commissioning, and validation.

Engineering and design experience included electrical short circuit calculations, protection device coordination studies, arc flash analysis, load studies, single line diagrams, power distribution, interior and exterior lighting systems, facility grounding, lightning protection systems, cable tray routing, fire alarm systems, telecommunication and data systems, security and door interlock systems, motor control elementary diagrams, and instrumentation loop diagrams

Project experience included large projects costing over \$220M, smaller renovation projects costing less than \$5K, and responsible for multiple simultaneous projects as part of a customer alliance agreement.

Electrical Forensic Engineer

Over 15 years of electrical forensic engineering experience including evaluation and determination of electrical failures in residential, commercial, and industrial environments and vehicles associated with electrical shock, faults, arcing, power surges, lightning strikes, improper installations, and code compliance. Systems and equipment examined included medium voltage (15KV) and low voltage electrical distribution equipment, HVAC equipment, instrumentation and controls, fire alarm, security, appliance failure investigation, and faulty equipment analysis. Fire investigations included origin, cause, and evaluation of fires involving electrical, electronic, and mechanical equipment and system failures. Engineering services included replacement cost analysis for electrical systems including transformers, medium and low voltage distribution equipment, motors, starters, controls, uninterruptible power systems (UPS), emergency generators, interior and exterior

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lighting, etc. and low voltage specialty control systems such as fire alarm, security, and telecommunications.

EDUCATION

Credits toward M.S., Electrical Engineering, Power Systems Studies, Drexel University, Philadelphia, PA

B.S. Electrical Engineering, Temple University, Philadelphia, PA

A.S. Fire Science, Southern Columbia University, Orange Beach, AL

A.A.S. Avionic Sensor Systems, Community College of the Air Force, Maxwell AFB, Mobile, AL

A.A.S. Mechanical Engineering Technology, Camden County Community College, Blackwood, NJ

Various courses, seminars, conferences, trade shows, etc. to complete continuous education credits to maintain professional engineering licenses

PROFESSIONAL AFFILIATION

Institute of Electrical and Electronic Engineers (IEEE)

National Fire Protection Association (NFPA)

National Association of Fire Investigators (NAFI)

PROFESSIONAL REGISTRATION

Registered Professional Engineer in California, Delaware, District of Columbia (DC), Georgia, Maryland, Michigan, New Hampshire, New Jersey, New York, Nevada, North Carolina, Pennsylvania, Rhode Island, South Carolina, Texas, Virginia, and Washington.