

# Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

**KEVIN D. McCONNELL, P.E., LEED AP, CFEI**  
**Electrical Engineer – Industrial, Commercial, Residential**

## PROFESSIONAL EXPERIENCE

2010 to present **Robson Forensic, Inc.**  
*Associate*

Provide technical investigations, analysis, reports, and testimony toward the resolution of commercial and personal injury litigation involving the design, construction, operation and maintenance of electrical systems, equipment and devices. Areas of expertise include:

**Fire and Explosion Investigations:** Investigate cause of electrical fires originating in utility lines and equipment, premises wiring, panelboards, switchgear, transformers, lighting fixtures and switches, receptacles, consumer and industrial equipment, NFPA921 Guide to fire and explosion investigation.

**Shocks and Electrocutions:** Evaluation of shock causation due to utility line contact, stray voltage, electrical equipment, devices, wiring, electrical faults, grounding.

**Electrical Construction:** Supervision of field personnel in installation, testing, inspection, means and methods, industry safe practices, construction sequencing and coordination in various commercial and heavy industrial installations.

**Electrical Codes and Standards:** National Electric Code (NEC), National Electric Safety Code (NESC), OSHA, NFPA 70E arc flash hazard analysis, industry safety practices, electrical installation design, operation, and maintenance.

**Electrical Power:** Investigation of failures of panelboards, circuit breakers, fuses, switchgear, motor controllers, contactors, starters, transformers, utility services, distribution systems, short circuit analysis, feeders, knob & tube wiring, cell tower electrical design and installation. Security and surveillance systems, HVAC controls, energy audits.

**Electrical Transmission and Distribution:** Overhead and underground, substations, low-, medium-, and high-voltage, 1-phase and 3-phase systems, transformers, grounding, line switches, metering, pole lines, duct banks, cable derating, construction, operation, maintenance.

**Electrical Control Systems:** Investigation of hardwired, PLC, and DCS industrial process control systems development, programming, installation, commissioning for, steel plant equipment (melting, casting, rolling, maintenance shop), water treatment plant equipment (pumps, cooling towers, heat exchangers, sand filters, clarifiers, filter presses), pipeline and petroleum equipment (tank farms, pumping stations, loading terminals, pumps, valves, meters, drag reduction systems, provers, pigs). Evaluation

# Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

**KEVIN D. McCONNELL, P.E., LEED AP, CFEI**  
**Electrical Engineer – Industrial, Commercial, Residential**

of switches, sensors, actuators, controllers, hydraulic systems. Analysis of safety of control system and emergency control system design.

**Devices Installed and Serviced:** Motors, drives, circuit boards, batteries, uninterruptible power supplies, emergency generator, isolated ground systems, power monitors, heaters, solenoid valves, combustion engine controls, ovens, switches, relays, analog devices, digital devices, tachometers, encoders, decoders, multiplexers, TTL, power supplies, crane controls, hydraulics, pneumatics, pumps, fans, motor controls, variable frequency drives, DC drives, soft starters, material handling equipment, switches, limit switches, temperature limits, proximity sensors, fuses, relays, circuit breakers, contacts, contactors, motor starters, motors, drives, power supplies, timers, connectors, splices, strain relief, terminals, terminations, cables, cords, conductors, receptacles, plugs, bus bars, analog transmitters, ultrasonic sensors, inductive sensors, photo-electric devices.

**Appliances Installed and Serviced:** Ranges, dishwashers, washers, dryers, water softeners, chemical additive systems, water heaters, toasters, refrigerators, televisions, computers, garage door openers, swimming pool pumps, heaters, chemical additive systems.

**Equipment and Activities:** Electrical demolition, carpentry, plumbing, hammer drills, band saws, circular saws, table saws, reciprocating saws, jig saws, drill presses, pipe threader, 1-man and 2-man auger, backhoe, front loader, chain saws, wood chippers, cemetery operating and maintenance equipment, welding.

1990 to present **McConnell Heating**, Clinton, PA  
*Assistant*

Provide assistance in sizing, purchasing, installing, and troubleshooting HVAC systems for residential and light commercial applications, including forced air, hot water, A/C, and heat pumps, electric, oil, natural gas, and propane fueled equipment.

1976 to present **McConnell Electric Services**, Weirton, WV  
*Owner*

- Electrical design, estimating, installation, and troubleshooting of residential and commercial electrical systems including power, communication, CATV, CCTV, security. Cat5/Cat6 networks, home theatre sound systems.
- Renovations as well as new construction.
- Residential and commercial plumbing installation and repairs.

# Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

**KEVIN D. McCONNELL, P.E., LEED AP, CFEI**  
**Electrical Engineer – Industrial, Commercial, Residential**

- 2007 to 2010 **CH2M HILL, Lockwood Greene**, Pittsburgh, PA  
*Electrical Engineer, Electrical Department Manager*  
*Mesabi Nugget*, Hoyt Lake, WI  
Managed engineering and design effort for power distribution, lighting, utilities, and control system installation design for iron nugget Large Scale Demonstration Plant.
- Allegheny Ludlum Washington Plate*, Washington, PA  
Supervised staff in the design of power distribution, lighting, utilities, and control system installation design for annealing line expansion. Prepared arrangement drawings, conduit routing, C&C schedule, panel schedules, specified devices, cable. Performed QA/QC monitoring of design documents.
- SDI Structural Mill Addition*, Columbia City, IN  
Supervised staff in the design of power distribution, lighting, utilities, and control system installation design for addition to structural mill. Prepared arrangement drawings, conduit routing, C&C schedule, panel schedules, specified devices, cable. Performed QA/QC monitoring of design documents.
- Nucor Yamato Castrip II*, Blytheville, AR  
Supervised staff in the design of power distribution, lighting, utilities, and control system installation design for new melt shop/caster/hot strip mill. Prepared arrangement drawings, conduit routing, C&C schedule, panel schedules, specified devices, cable. Performed QA/QC monitoring of design documents.
- 2009 **Jaguar Appraisals & Determinations, Inc.**, East Norriton, PA  
*Associate*  
Electrical Equipment Failure Investigation engineer. Provided on-site electrical evaluation and prepared report of professional opinion for electrical equipment contribution to fire.
- 2008 **USGBC**  
*Design Review Team Member* (as part of SRI)  
Supervised and trained staff as well as perform assigned reviews of projects submitted to USGBC. Prepared SOI letters as well as provided review comments and technical advice thru LOL. Performed QA/QC monitoring of team design reviews.
- 2000 to 2007 **STV Inc.**, Pittsburgh, PA  
*Sr. Electrical Engineer*  
*ChevronTexaco Central Utility Plant*, Ft. Detrick, VA  
Design of power distribution, lighting, utilities for industrial utility plant. Prepared arrangement drawings, conduit routing, C&C schedule, panel schedules; specified fixtures, devices, cable.

# Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

**KEVIN D. McCONNELL, P.E., LEED AP, CFEI**  
**Electrical Engineer – Industrial, Commercial, Residential**

*Exxon Mobile Pipeline L.P., AMPCO Hammond Terminal, East Chicago, IN*  
Control System Upgrade. Developed cabinet layout, PLC elementary wiring diagrams, power and signal conduit arrangement, conduit and cable schedules, valve and instrument schematics for plant PLC control system upgrade with wireless link to remote locations. Project included design for Class 1, Division 2 classified areas.

*Sunoco Pipeline L.P., various locations in OH, MI, PA*  
Developed cabinet layout, PLC elementary wiring diagrams, power and signal conduit arrangement, conduit and cable schedules, valve and instrument schematics for plant PLC control system upgrades. Projects included design for Class 1, Division 2 classified areas.

*Colonial Pipeline, various pumping stations in VA, NC, SC, GA*  
Developed power, grounding and control system interconnections with existing station systems for retrofit of new DRA units. Project included design for Class 1, Division 2 classified areas.

*Extended Stay America, West Mifflin, PA*  
On-site electrical installation inspection and compliance review, including incoming service, grounding, distribution, site lighting, CATV, telephone systems.

*Connecticut Resource Recovery Authority, Hartford, CT*  
Mid-Connecticut Project Facilities Safety Assessment. Performed safety and maintenance audit of recycling facility including material handling systems and power plant. Prepared report which included log of safety issues as well as suggestions for safety and process improvements.

*Agere, Allentown, PA*  
Prepared control system design and electrical distribution system layout for water treatment equipment to support plant expansion.

*L'Oreal USA, Clark, New Jersey*  
Prepared electrical distribution system layout and location for research and development facility renovation.

*Lockheed Martin, Moorestown, NJ*  
Prepared reflected ceiling plan lighting layout, power distribution layout, and grounding for two story building addition.

*California Department of Transportation, CALTRANS, Oakland, CA*  
Field investigation of existing SCADA, PLC, and tunnel fan control system. Prepared specifications for upgrade of SCADA, PLC hardware and logic, and conversion of fan drives to VFD and inverter duty motors. Managed sub-consultant in development

# Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

## KEVIN D. McCONNELL, P.E., LEED AP, CFEI Electrical Engineer – Industrial, Commercial, Residential

of Wonderware screens. Developed cabinet layout, PLC elementary wiring diagrams, power and signal conduit arrangement, conduit and cable schedules, motor/drive power schematics.

### *Allegheny County Airport Authority, Pittsburgh International Airport*

- Baggage Handling Area Roof. Project Manager. Supervised architectural and structural designers. Prepared lighting plan for area enclosed under new roof. Entire design is to blend with existing building architecture and lighting.
- Prepared power and fiber optic routing drawings for new Variable Message Sign. Supervised structural and civil design for various overhead sign structure restoration efforts. Prepared product and construction specifications. Includes design in conjunction with FAA air spacing requirements.
- Roadway Lighting Design. Project Manager. Prepared lighting plan for replacement and upgrade of existing highway lighting system. Included design in conjunction with FAA air spacing requirements, specifying fixtures and poles, power company coordination, bore and jack conduit highway crossing.

*Allegheny County Airport Authority, Allegheny County Airport; West Mifflin, PA Security Gate Reconfiguration. Project Manager.* Prepared design and specifications for reconfiguration of east security gate to include new gates, operators, gate area roadway reconfiguration, access control and monitoring systems, pedestrian turnstile, lighting, power distribution.

### *Point Park University Campus Energy Audit, Pittsburgh, PA*

Under contract from Trane, performed field evaluation and Trace energy model of all campus buildings including administration building, classrooms/lecture halls, library, student housing and performing arts center. Objective was to provide energy audit for each building using Trane Trace software, and provide suggestions for upgrade and modifications to campus physical plant to improve energy cost performance. Recommended improvements included updating electrical distribution system, replace boilers, install additional chillers, and install room occupancy lighting controls.

*Various cellular clients, locations throughout PA, OH, NY, MD, CO, NM, CA, WV* Power, grounding and telephone design for cellular installations. Negotiated contract and managed engineering design with various national cellular clients including Cricket, Sprint, AT&T, and Nextel. Performed site evaluations and determine utility requirements. Sites include co-locates, raw land, and rooftop installations. Coordinated design with other cellular carriers where present. Coordinated requirements with power and telephone utilities. Prepared drawings of power single lines, grounding plans, conduit and cable routing.

# Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

## KEVIN D. McCONNELL, P.E., LEED AP, CFEI Electrical Engineer – Industrial, Commercial, Residential

1995 to **Acutus Gladwin**

1999 *Sr. Electrical Engineer, Head of Electrical Department*

*Caster Retrofit at Side Peru Steel, Chimbote, Peru*

Overall project manager for retrofit of new caster mechanical equipment and new control system. Designed electric, hydraulic, and pneumatic systems. Supervised electrical and mechanical designers. Supervised equipment suppliers. Created and maintained overall project budget and schedule.

*Caster Performance Review, Severstahl Steel, Cherepovets, Russia*

Conducted on-site review of casting machine equipment and procedures. Provided suggestions for equipment upgrades, maintenance practices, and procedures improvements.

*National Steel, Great Lakes Division, Ecorse, MI*

Evaluated existing systems. Designed upgrades and enhancements to electric, hydraulic, and pneumatic systems to convert caster to twinning capability. Supervised installation engineering efforts in structural, piping, and electrical fields. Supervised site installation, testing, inspection, means and methods, industry safe practices, construction sequencing and coordination including task scheduling and progress reviews. Created and maintained project budget and schedule.

*Wheeling-Pittsburgh Steel, Mingo Junction, OH*

Designed upgrades to electric and hydraulic systems to increase product quality. Supervised electrical designers. Created and maintained project budget and schedule.

*Weirton Steel; Weirton, WV*

Monitored existing systems and recommended changes to present practices for hot strip mill, caster, and tandem mill. Evaluated existing systems and presented upgrades and enhancements to electric, hydraulic, and pneumatic systems as well as operating and maintenance practices to increase production. Supervised installation engineering efforts. Supervised site installation, testing, inspection, means and methods, industry safe practices, construction sequencing and coordination including task scheduling and progress reviews. Created and maintained project schedule and budget, including anticipated return on investment.

1989 to **Mannesmann Demag**

1994 *Electrical Engineer*

*IPSCO Steel, Muscatine, IA*

Designed electric, control, hydraulic, and pneumatic systems for greenfield melt shop/ caster/ steckel mill plant. Supervised electrical designers in North America, Europe, and Pacific Rim. Supervised installation engineering efforts in structural, piping, and electrical areas. Created and maintained electrical project budget and schedule.

# Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

## KEVIN D. McCONNELL, P.E., LEED AP, CFEI Electrical Engineer – Industrial, Commercial, Residential

*LTV DHCC, Cleveland, OH*

Designed electric and control system for melt shop and two strand caster on brownfield site. Supervised installation engineering efforts in structural, piping, and electrical fields. Supervised site installation, testing, inspection, means and methods, industry safe practices, construction sequencing and coordination including task scheduling and progress reviews. Created and maintained overall project budget and schedule.

*WCI Steel, Warren, OH*

Designed electric, control, and water systems for two strand caster on greenfield site. Supervised installation engineering efforts in structural, piping, and electrical fields. Supervised and directed site installation, testing, inspection, means and methods, industry safe practices, construction sequencing and coordination including task scheduling and progress reviews. Created and maintained overall project budget and schedule.

*Newport Steel, Newport, KY*

Designed electric and control system for low-head caster on brownfield site. Supervised installation engineering efforts in structural, piping, and electrical fields.

1982 to **Duquesne Light Company, Pittsburgh, PA**

1989 *Engineer – Transmission & Distribution Department*

- Performed new distribution product evaluations. Investigated product failures including URD concentric neutral corrosion, tower aluminum wind brace fatigue cracks.
- Developed computerized database of circuit outages to expedite investigation of customer power outage complaints and determine root cause.
- Installed lightning detection system in conjunction with SUNY, to provide advanced warning of impending storms to manage field staff and mobilize crews.
- Performed extensive investigation of various stray voltage complaints on several dairy farms. This is an ongoing national problem that has been deeply researched and several fixes have been implemented but a standard solution has not yet been determined.
- Taught basic electricity class to newly hired linemen. Learned pole climbing.
- Prepared equipment operation and maintenance manuals.
- Participated with field personnel in troubleshooting, pole line extension design, service drop locations, overhead line pulling, and underground network cable repairs.

# Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

**KEVIN D. McCONNELL, P.E., LEED AP, CFEI**  
**Electrical Engineer – Industrial, Commercial, Residential**

## PROFESSIONAL CREDENTIALS

Professional Engineer: Pennsylvania, West Virginia, Ohio, New York, New Jersey, Virginia, Delaware, Maryland, Kentucky, Indiana, Michigan, Oklahoma, Illinois, Missouri, Texas, New Mexico, Arizona, Utah, Colorado, Louisiana, Florida, Nevada, Arkansas, Wisconsin, North Carolina, South Carolina  
NCEES (National Council of Examiners for Engineering & Surveying)  
LEED Accredited Professional, 2006  
HAZWOPER certified 2002  
Certified Fire and Explosion Investigator

## EDUCATION

B.S., Electrical Engineering, Carnegie Mellon University

### *Additional training:*

National Association of Subrogation Professionals (NASP) – Commercial Kitchen Fires, 2012  
Managing Electrical Risk, I-Gard Corporation, Columbus, OH, December 2011  
Appliance Fire and Failure Investigation, Pennsylvania Association of Arson Investigators (PAAI) – State College, PA, 2011  
NFPA 70E 2009 Electrical Safety in the Workplace – Certificate of Educational Achievement

## PROFESSIONAL MEMBERSHIPS

National Association of Fire Investigators (NAFI)  
National Fire Protection Association (NFPA)  
Pennsylvania Association of Arson Investigators, Associate Member (PAAI)  
Instrumentation, Systems, and Automation Society, Senior Member (ISA)  
Electric League of Western Pennsylvania (inactive)

## PRESENTATIONS

CEU Institute 2011 Property Coverage and Risk Seminar