



## Al Havens

### Electrical Safety Consultant

Al Havens brings more than 40 years of electrical safety experience to the classroom, 26 as Senior Electrical Engineer for U.S. Gypsum. He has extensive experience in industrial plant and underground mine power distribution upgrades and is expert in the design and commission of high resistance ground, switchgear battery, and automatic power factor systems. He has also designed and commissioned over 100 substations, ranging from 480v to 161 Kv.

Al served as head of the USG Energy Monitoring Task Force and established their NFPA 70E compliance and training programs. He worked extensively on compliance issues with the Mine Safety and Health Agency (MSHA).

#### Career Highlights

**e-Hazard****2008-Present***Electrical Safety Consultant***U.S. Gypsum****1981-2007***Electrical Engineer*

- Directed USG's activities in adopting compliance to National Fire Protection Association's (NFPA) 70E® standards.
- Prepared and participated in electrical safety audits for USG's industrial plants.
- Prepared and participated in electrical audits for compliance with MSHA regulations in USG's 15 mines and quarries.
- Initiated and chaired the USG Energy Monitoring Task Force.
- Supervised the design and commissioning of five underground mine electrical power distribution system upgrades at USG's Oakfield, Sperry, Plasterco, Shoals, and Hagersville mines.
- Developed, designed, and commissioned USG's standard for high resistance ground systems and for switchgear battery systems, including a battery voltage monitor.
- Implemented Schweitzer's 701 motor control relay as USG's standard for critical motors.

**Publications**

- Presented 12 papers on electrical safety at IEEE Electrical Safety Conferences.

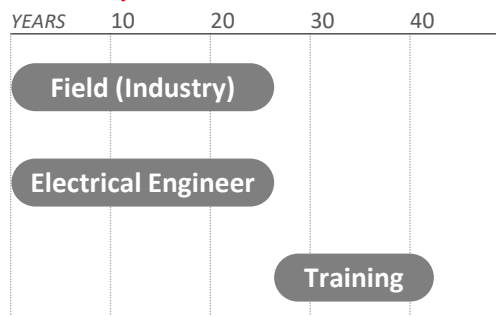
#### Snapshot

**Focus****TRAINING**

- Low Voltage
- High Voltage
- NEC
- Utilities
- Electric Vehicle (EV)
- Customized

**SERVICES**

- Audits

**Career Experience Timeline****Certifications****AEMC**

Certified Earth Grounding Instructor

**Licenses & Professional Memberships****U.S. Navy**, Submarine Veteran**Institute of Electrical and Electronics Engineers (IEEE)**, Member and Paper Reviewer