



Standard Practice for Investigating Electrical Incidents¹

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1. Scope

1.1 This practice covers guidelines for the recognition, documentation, collection and preservation of potentially relevant information and physical items involving electrical incidents, electrical injury, and/or the electrocution of individuals in low and medium voltage residential and industrial installations.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

E 620 Practice for Reporting Opinions of Technical Experts
E 678 Practice for Evaluation of Technical Data
E 860 Practice for Examining and Testing Items That Are or May Become Involved in Litigation
E 1020 Practice for Reporting Incidents

2.2 NFPA Standards:

NFPA 921 Guide for Fire and Explosion Investigations³
NFPA 70 E Standard for Electrical Safety Requirements for Employee Workplaces³
NFPA 70 National Electric Code³

2.3 Other Standards:

ANSI IEEE Std 81-1983 IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System⁴
UL 943 UL Standard for Safety for Ground-Fault Circuit-Interruption⁵

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) Title 29 Code of Federal Regulations, 29 CFR, §1910.5⁶

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) Title 29 Code of Federal Regulations, (29 CFR) Subpart S, 29 CFR 1910.302 through 1910.399 of the General Industry Safety and Health Standards⁷

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) Title 29 Code of Federal Regulations, (29 CFR) Subpart K, Electrical 29 CFR 1926.400 through 1926.408 of the Construction Safety and Health Standards⁸

U.S. Department of Health and Human Services, Public Health Service, Centers for Disease and Prevention, National Institute for Occupational Safety and Health (NIOSH) “Worker Deaths By Electrocution—A Summary of NIOSH Surveillance and Investigative Findings”
IEC 479-1 Technical Report, Type 2 Effects of Current on Human Beings and Livestock

IEC 479-2 Technical Report, Type 2 Effects of Current Passing Through the Human Body

3. Significance and Use

3.1 In the United States, electrocutions in the home number about 560 per year, while industry electrocutions are the fifth leading cause of occupational deaths, accounting for 5348 deaths, or about seven percent of all work-related deaths for the period between 1980 and 1992. Electrical burns account for 4 to 6.5 % of all admissions to burn units in the United States and

¹ This practice is under the jurisdiction of ASTM Committee E30 on Forensic Sciences and is the direct responsibility of Subcommittee E30.05 on Engineering. Current edition approved April 1, 2004. Published May 2004.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269-9101.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.

⁵ Available from Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.

⁶ 29 CFR (1999) §1910.5 (a) “Except as provided in paragraph (b) of this section, the standards contained in this part shall apply with respect to employment performed in a workplace in a State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa ...”

⁷ 29 CFR (1999) §1910.302 (2) “Every electric utilization system and all utilization equipment installed after March 15, 1972, and every major replacement, modification, repair, or rehabilitation, after March 15, 1972, of any part of any electric utilization system or utilization equipment installed before March 15, 1972, shall comply with the provisions of Sections 1910.302 through 1910.308.”

⁸ Subpart K of 29 CFR 1926.402 through 1926.408 of the OSHA Construction Safety and Health Standards contain installation safety requirements for electrical equipment and installations used to provide electric power and light at the jobsite. These sections apply to both temporary and permanent installations used on the jobsite.