Electrical Hazards – By the Numbers



ELECTRICAL HAZARDS

DID YOU KNOW?

The Electrical Safety Foundation International (ESFI) is a non-profit organization dedicated exclusively to promoting electrical safety at home and in the workplace. Founded in 1994 as a cooperative effort by the National Electrical Manufacturers Association (NEMA), Underwriters Laboratories (UL), and the U.S. Consumer Product Safety Commission (CPSC), ESFI is funded by voluntary contributions from electrical manufacturers, distributors, independent testing laboratories, retailers, insurers, utilities, safety organizations, and trade and labor associations.

To better promote electrical safety in the workplace, ESFI provides statistical data on occupational electrical injuries and fatalities to help decision-makers better allocate safety resources for maximum impact. ESFI work builds on earlier work by the National Institute for Occupational Safety and Health (NIOSH), providing new information on electrical incidents as it becomes available. The data in ESFIz.

 reports cover U.S. occupational electrical accidents, including the total number of electrical injuries and fatalities, the industries and occupations in which they occurred, and the rates of electrical injury and fatality for selected industries.

Fatal Electrical Injuries

- There were 160 electrical fatalities in 2018. An 18% increase over the previous year and the highest number of fatalities since 2011.
- Fatality rates per 100,000 workers were 0.11 in 2018, compared to 0.13 in 2011.
- Contact with / Exposure to electric current accounted for 3% of all fatalities in 2018. In 2017, they accounted for 2.6%, in 2016 2.9%, 2015 2.7% and 3.1% in 2014.
- All electrically related fatalities were caused by electric shock, no fatalities were caused by burns.
- Construction industry accounted for 54% of all electrical fatalities, the same percentages as in 2017. Professional and business services accounted

for 28% of electrical fatalities.
- The construction industry had the highest rate of fatal electrical injuries (0.8 / 100,000) followed by utility (0.55 / 100,000).
- In 2018, 9% of all electrical injuries were fatal.
- Good producing private industries (natural resources and mining, construction, manufacturing) accounted for 71% of fatal electrical injuries compared to 28% fatal injuries from service-providing private industries.
- The number of electrical fatalities varies between ages
- 6% of electrical fatalities occurred in workers aged 20 – 24
- 31% of electrical fatalities occurred in workers aged 25 – 34
- 30% of electrical fatalities occurred in workers aged 34 – 44
- 14% of electrical fatalities occurred in workers aged 45 – 54
- 14% of electrical fatalities occurred in workers aged 55 – 64
- 4% of electrical fatalities occurred in workers aged 65+
- Leading primary Source of Fatal Electrical Injury
- Parts and Materials: 41%
- Machine Tool and Electric Parts: 36%
- Tool, Instruments and Equipment: 17%
- Machinery: 14%
- Vehicles: 14%
- “Constructing, Repairing, Cleaning” accounted for the leading worker activity for electrical fatalities at 63%. “Using or Operating Tools, Machinery” accounted for 23% of electrical fatalities.
- 35% of electrical fatalities occurred in Private Residences, 26% occurred in Industrial Place and Premises, and 13% in Street and Highway.
- The Construction and Extraction Occupations accounted for 47% of electrical fatalities, Installation, Maintenance, and Repair Occupations accounted for 21% and Building and Grounds Cleaning and Maintenance Occupations 15%.

Nonfatal Electrical Injuries

- There were a record low number of nonfatal electrical injuries in 2018, 1,560. A 29% decrease over 2017. There was an 8% decrease over 2016, the year with the previous lowest number of nonfatal electrical injuries.
- 0.17% of all nonfatal injuries resulting in days away from work could be attributed to electricity during 2018. In 2017, 0.25% could be attributed to electricity.
- The median number of days away from work for nonfatal electrical injuries was 4 in 2018, a 60% drop from 2017, returning to 2014 levels.
- The industries with the leading number of nonfatal electrical injuries:
    - Construction: 20%
    - Manufacturing: 16%
    - Leisure and Hospitality: 13%
    - Education and Health Services: 11%
    - Accommodation and Food Services: 10%
    - Electrical shocks accounted for 1,080 of the non-fatal electrical injuries while burns accounted for 490.

“Most Wanted List”

Osha’s Top Electrical Violators of 2019!!!

Lockout / tagout

OSHA – 29 CFR 1910.147

NFPA 70E – 120.1

Proper lockout/tagout (LOTO) practices and procedures safeguard workers from the release of hazardous energy.

Personal Protective and Lifesaving Equipment: Eye & Face Protection

OSHA – 29 CFR 1926.102

NFPA 70E – 130.7(C)(3)

The employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards.

KEEP IN MIND

The Electrical Safety Foundation International (ESFI) uses the U.S. Bureau of Labor Statistics' (BLS) Census of Fatal Occupational Injuries (CFOI) and Survey of Occupational Injuries (SOII) to distill information specifically pertaining to fatal and nonfatal occupational electrical injuries. Each year the ESFI publishes electrical injury information in tabular and graphical form on our website. The most recent data covers the 24-year period from 1992-2018. **But mainly focuses on 2003-2018. The history of fatal and non-fatal cases is important if only to show trends in the workplace.**

Almost 6,000 fatal electrical injuries occurred to workers in the United States between 1992 and 2013, according to "Occupational Injuries from Electrical Shock and Arc Flash Events," a report released by the Fire Protection Research Foundation in March 2015, and data from the U.S. Bureau of Labor Statistics (BLS). From 2003 through 2012, 24,100 non-fatal electrical injuries occurred, which is the most recent 10-year period for which data is available.

What does this information tell you with present day data?

BLS statistics show that the number of fatal workplace electrical injuries has fallen steadily and dramatically in the past 20 years, from 334 in 1992 to 139 in 2013. But the trend with non-fatal electrical injuries is less consistent. Between 2003 and 2009, non-fatal injury totals ranged from 2,390 in 2003 to 2,620 in 2009, with a high of 2,950 injuries in 2005. Non -fatal injury totals between 2010 through 2012 were the lowest during this ten-year period, with 1,890 non-fatal injuries in 2010, 2,250 in 2011, and 1,700 in 2012.

Little change over decade

The Fire Protection Research Foundation report says there has been little change in the non-fatal electrical injury incidence rate in the past decade. Injury rates represent an important measure by taking into account injury occurrence relative to the working population. From 2003 through 2009, the non-fatal electrical injury incidence rate was 0.3 per 10,000 workers across all industry each year. The rate fell to 0.2 in 2010, rose again to 0.3 in 2011, and fell again to 0.2 in 2012.

The Electrical Safety Foundation International has compiled the occupational electrical injury experience of the major industries and occupations from data

available through the U.S. Bureau of Labor Statistics for the period 2003 through 2010.

A total of 42,882 occupational fatalities occurred from all causes and 1,738 of those were due to contact with electric current. The construction industry had the highest number of electrical fatalities (849), followed by professional and business services (208), trade, transportation, and utilities (182), natural resources and mining (154), and manufacturing (137). Just five occupations in the construction trades – electricians, construction laborers, roofers, painters, and carpenters – experienced more than 32% of all electrical fatalities, electrical power line installers and repairers about 8%, and tree trimmers about 5%.

All of the 163 electrical fatalities during 2010 were men; the self-employed were about 22% of all occupational deaths but only 19% of electrical deaths; nearly 68% were white, less than 6% were black, 24% were Hispanic; 98% died of electrocution; 63% were constructing, repairing or cleaning something at the time of death; 34% died on industrial premises, 28% at a private residence, and nearly 12% on a street or highway, and; 96% were employed in private industry.