



Electrocutions and Prevention in the Construction Industry
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November 15, 2017

CPWR Quarterly Data Reports

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Introduction

- OSHA focus four hazards
 - Falls
 - Struck-by
 - **Electrocution**
 - Caught-in/between

The image displays three overlapping covers of CPWR Quarterly Data Reports. The top cover is titled "Fall Injuries and Prevention in the Construction Industry" (First Quarter 2017) and lists authors Xiuwen Sue Dong, PhD, Xuanwen Wang, PhD, Rebecca Katz, MPH, Gavin West, MPH, and Jessica Bunting, MPH. The middle cover is titled "Struck-by Injuries and Prevention in the Construction Industry" (Second Quarter 2017) and lists authors Xuanwen Wang, PhD, Rebecca Katz, MPH, Scott Schneider, CH, Babak Memarian, PhD, and Xiuwen Sue Dong, DrPH. The bottom cover is titled "Electrocutions and Prevention in the Construction Industry" (Third Quarter 2017) and lists authors CPWR Data Center, Xuanwen Wang, PhD, Rebecca Katz, MPH, Chris Le, MPH, and Xiuwen Sue Dong, DrPH. Each cover includes a "KEY FINDINGS" section with bullet points.

CPWR Quarterly DATA REPORT
 WWW.CPWR.COM
 FIRST QUARTER 2017
Fall Injuries and Prevention in the Construction Industry
 Xiuwen Sue Dong, DrPH*, Xuanwen Wang, PhD, Rebecca Katz, MPH, Gavin West, MPH, Jessica Bunting, MPH

Falls are a common cause of fatal and nonfatal injuries in the construction industry. In response to the fatalities, the National Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), and CPWR—the National Center for Construction Safety and Health—have launched a national campaign to increase public awareness of fall prevention. This Quarterly Data Report provides updated information on fall prevention for construction workers, focusing on residential construction workers. In addition to the National Campaign Map (NCM) maintained by CPWR, this report provides national campaign statistics (NCS) at the national level, the number of residential construction workers. New findings from the National Campaign Map (NCM) associated with the fall prevention campaign are reaching residential construction workers.

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CPWR Quarterly DATA REPORT
 WWW.CPWR.COM
 SECOND QUARTER 2017
Struck-by Injuries and Prevention in the Construction Industry
 Xuanwen Wang, PhD, Rebecca Katz, MPH, Scott Schneider, CH, Babak Memarian, PhD, Xiuwen Sue Dong, DrPH*

Struck-by hazards are a leading cause of fatal and nonfatal injuries in the construction industry. In response to the fatalities, the National Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), and CPWR—the National Center for Construction Safety and Health—have launched a national campaign to increase public awareness of fall prevention. This Quarterly Data Report provides updated information on fall prevention for construction workers, focusing on residential construction workers. In addition to the National Campaign Map (NCM) maintained by CPWR, this report provides national campaign statistics (NCS) at the national level, the number of residential construction workers. New findings from the National Campaign Map (NCM) associated with the fall prevention campaign are reaching residential construction workers.

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CPWR Quarterly DATA REPORT
 WWW.CPWR.COM
 THIRD QUARTER 2017
Electrocutions and Prevention in the Construction Industry
 CPWR Data Center, Xuanwen Wang, PhD, Rebecca Katz, MPH, Chris Le, MPH, Xiuwen Sue Dong, DrPH*

Electrocution is a leading cause of fatalities in construction, and has been identified as one of the Focus Four hazards by the U.S. Occupational Safety and Health Administration (OSHA), along with falls, caught-in-between, and struck-by (OSHA, 2011). Electrocutions can occur in many ways among different occupations. To better understand electrocutions among construction workers, and provide updated information for electrocution prevention, this Quarterly Data Report analyzed the trends and patterns of deaths due to electrocution, including primary sources of electrocution, vulnerable worker groups, and high-risk occupations. Because the number of nonfatal injuries caused by electrical hazards is small, this report only focuses on fatal injuries from electrocution. Numbers of fatalities were obtained from the Census of Fatal Occupational Injuries (CFOI) and employment data were from the Current Population Survey (CPS). Both the CFOI and the CPS data are collected by the U.S. Bureau of Labor Statistics (BLS). To emphasize the importance of intervention, this report also includes solutions to prevent electrocutions selected from multiple sources, including OSHA, the National Institute for Occupational Safety and Health (NIOSH), and CPWR.

KEY FINDINGS

- Between 2003 and 2015, the number of electrocution deaths in construction decreased by 39% compared to the 1990s reduction in overall construction fatalities.
- Despite the reduction, 82 construction workers died of electrocution in 2015, comprising 61% of all work-related electrocution deaths in the nation that year.
- About 32% (115 out of 364) of electrocution fatalities occurred among electrical contractors, more than any other subsector in construction.
- One hundred and five electricians died of electrocution in construction, more than any other occupation from 2011 to 2015, but power-line installers had the highest rate of electrocution deaths of any occupation.
- Workers aged 35-64 comprised the largest proportion of electrocution deaths of any age group; however, workers under 25 suffered the highest rate of electrocution fatalities.

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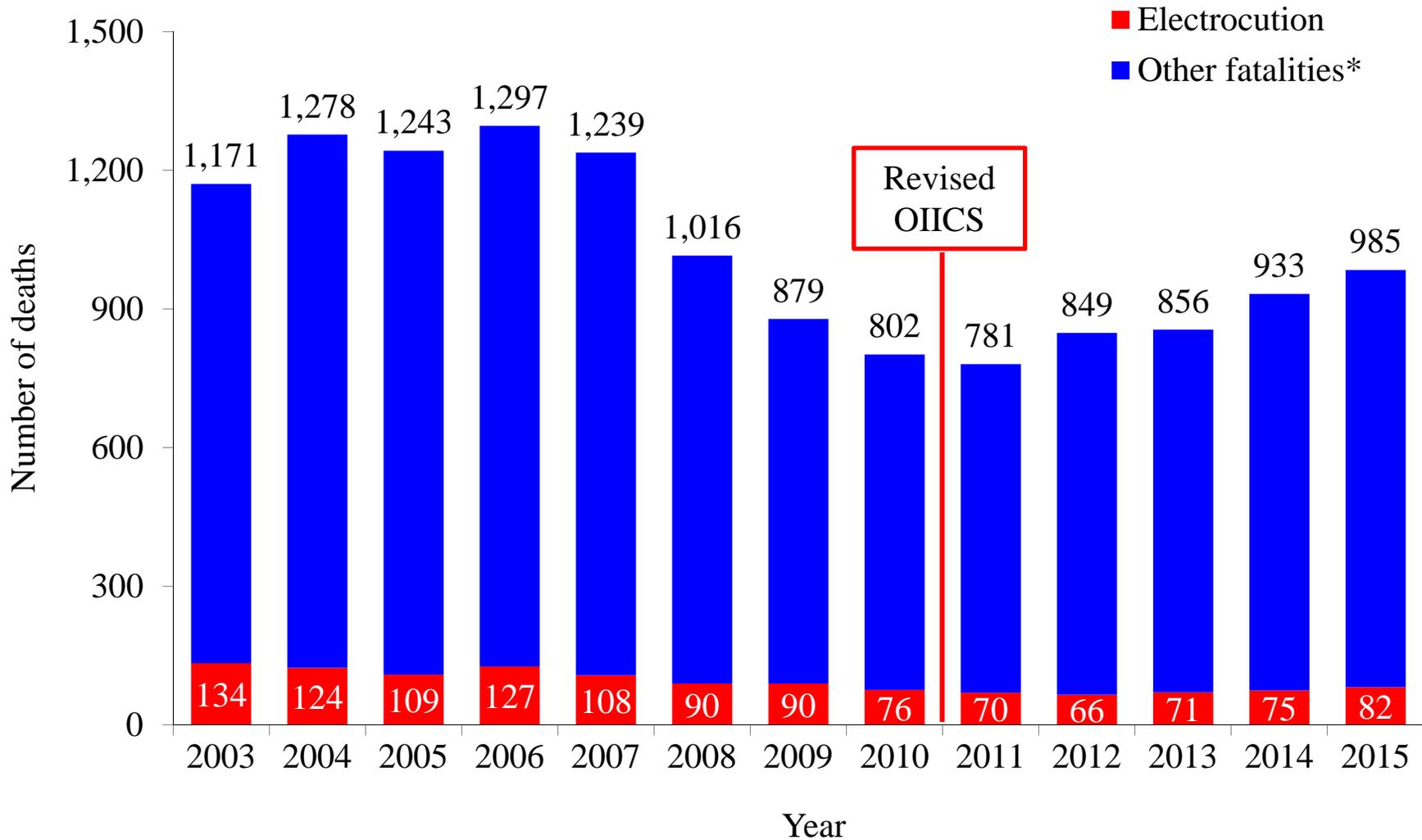
Data sources

Because the number of nonfatal injuries caused by electrical hazards is small, this report only focuses on fatal injuries from electrocution.

1. Bureau of Labor Statistics, 2003-2015 Census of Fatal Occupational Injuries
2. Bureau of Labor Statistics, 2003-2015 Current Population Survey

I. Trends of Electrocutions in Construction

Between 2003 and 2015, the number of electrocution deaths in construction decreased by 39% compared to the 16% reduction in construction fatalities

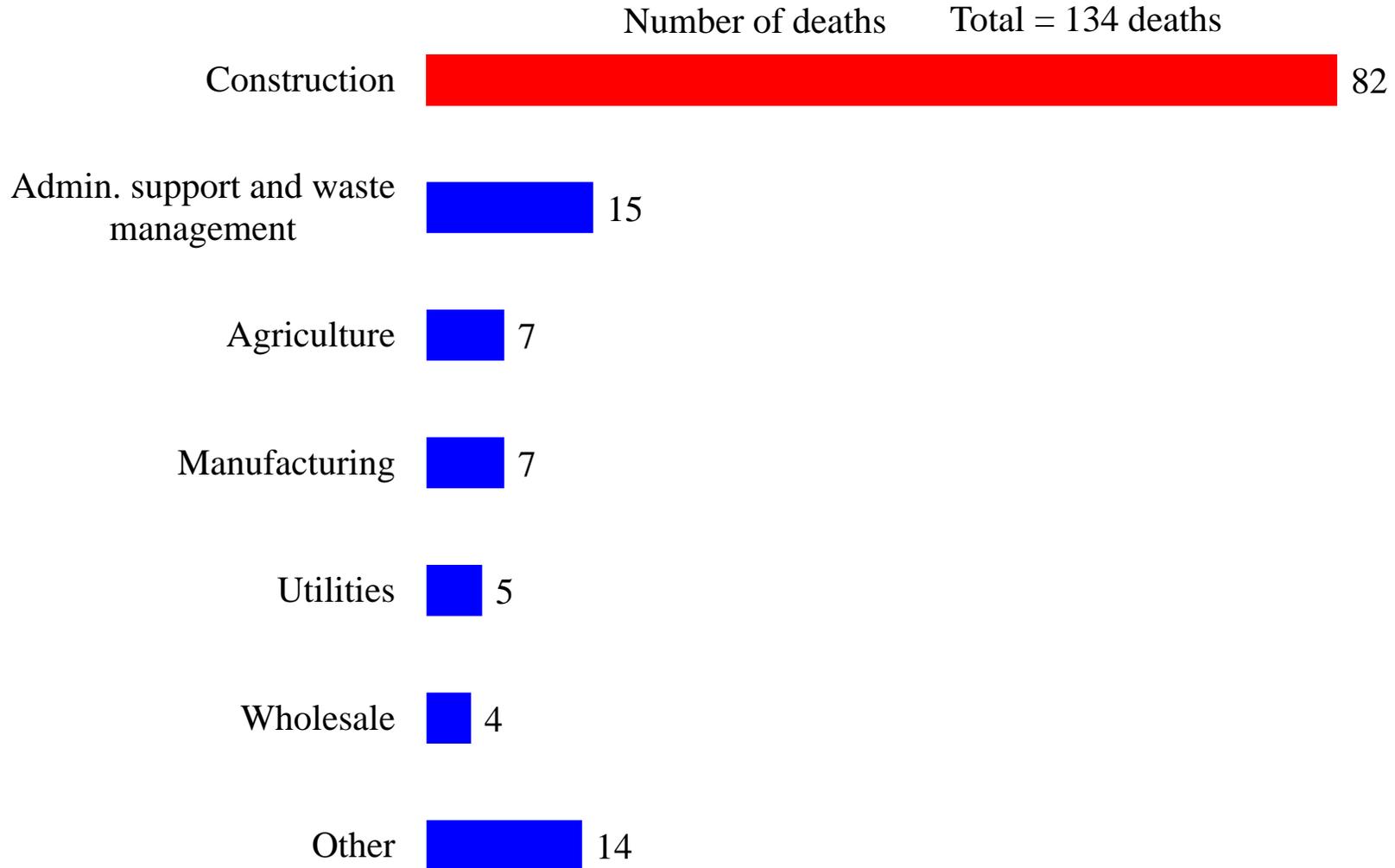


Note: In 2011, the CFOI switched to OIICS version 2.01, therefore the numbers before and after 2011 are not comparable.

* Other fatalities are fatalities from all causes except electrocution.

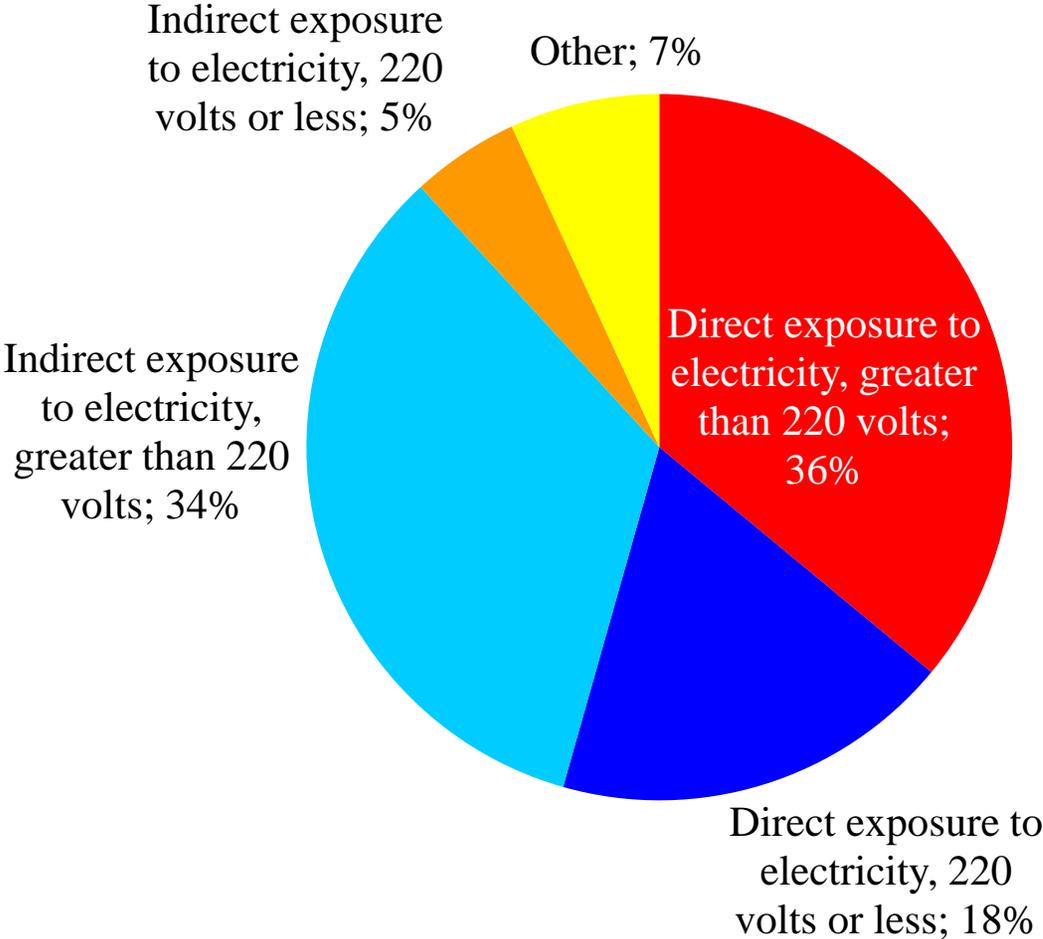
Source: Fatal injury data were generated by the CPWR Data Center with restricted access to BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.

Construction had the highest number of electrocution deaths among all industries in 2015



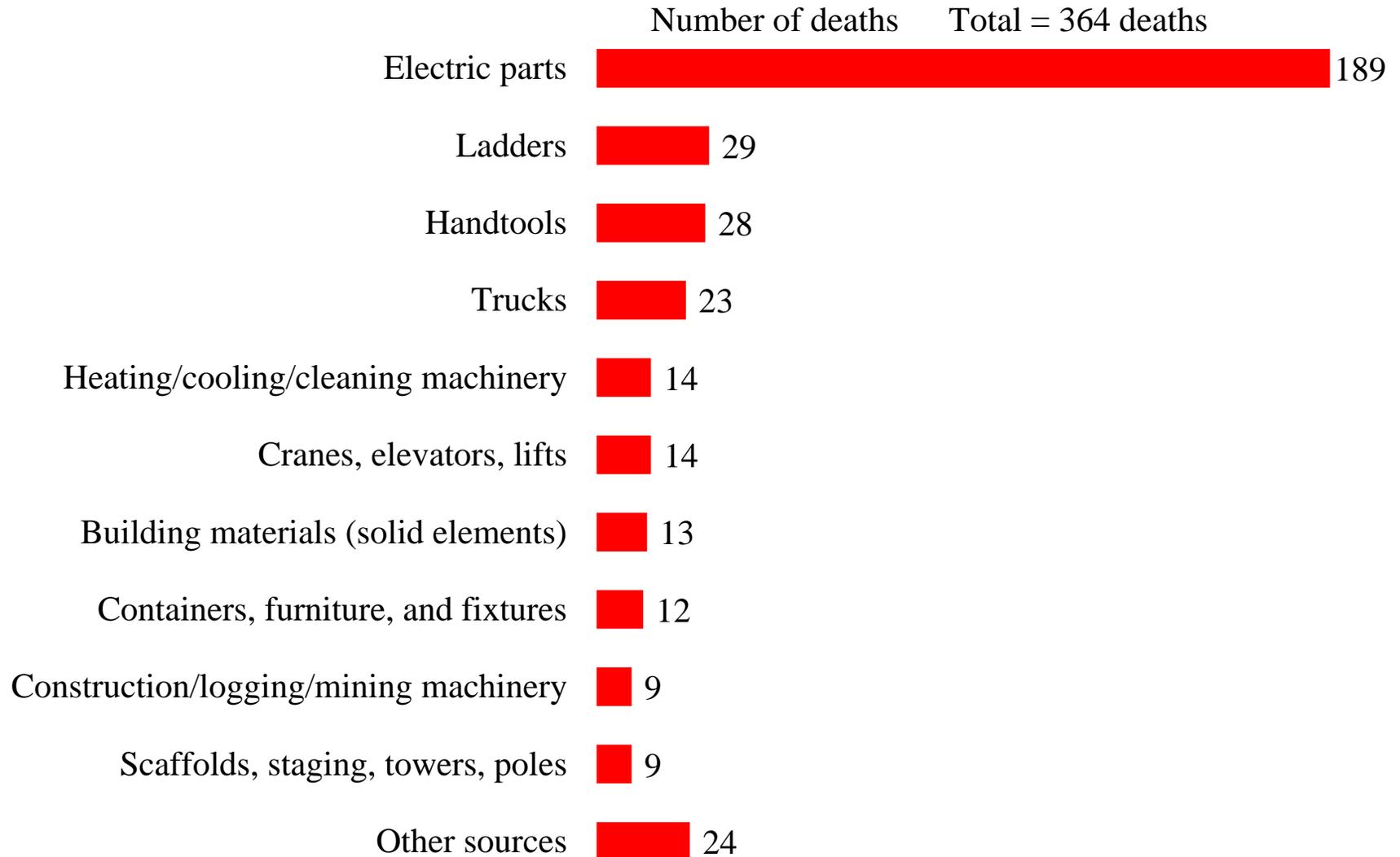
Electrocutions in construction, by major event or exposure, sum of 2011-2015

Total = 364 deaths



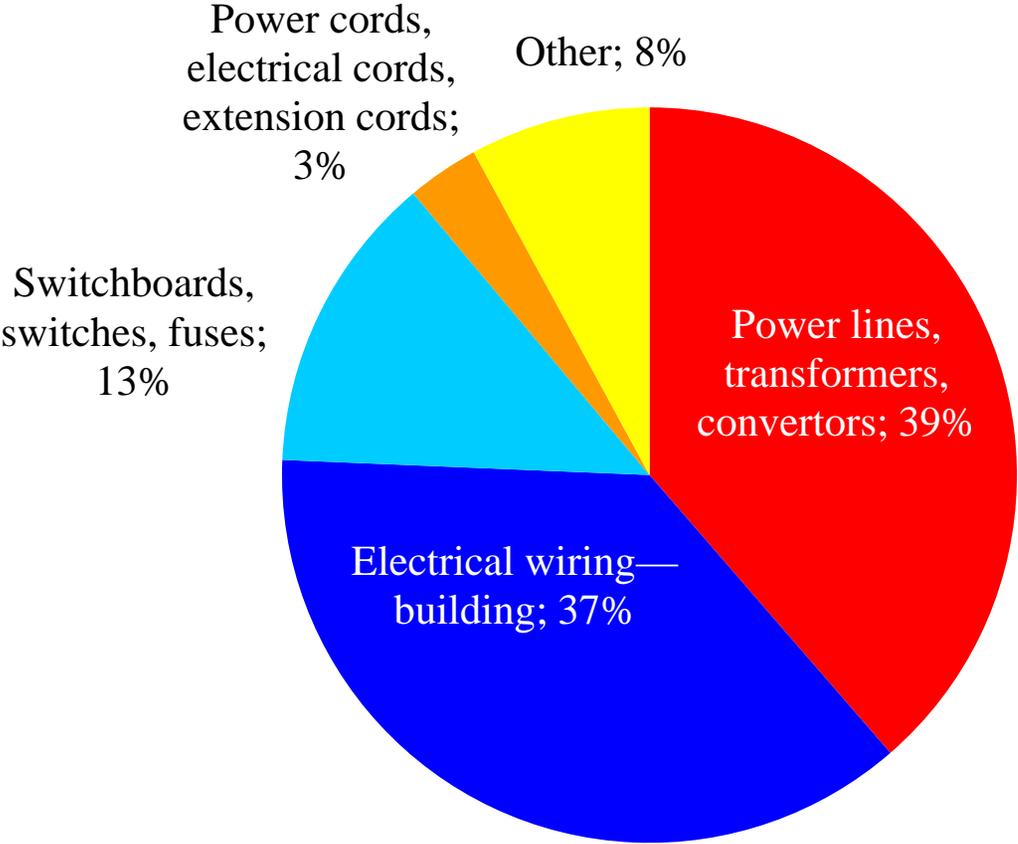
This research was conducted with restricted access to Bureau of Labor Statistics (BLS) data. The views expressed here do not necessarily reflect the views of the BLS.

Electric parts were the leading source of electrocution fatalities in construction between 2011 and 2015



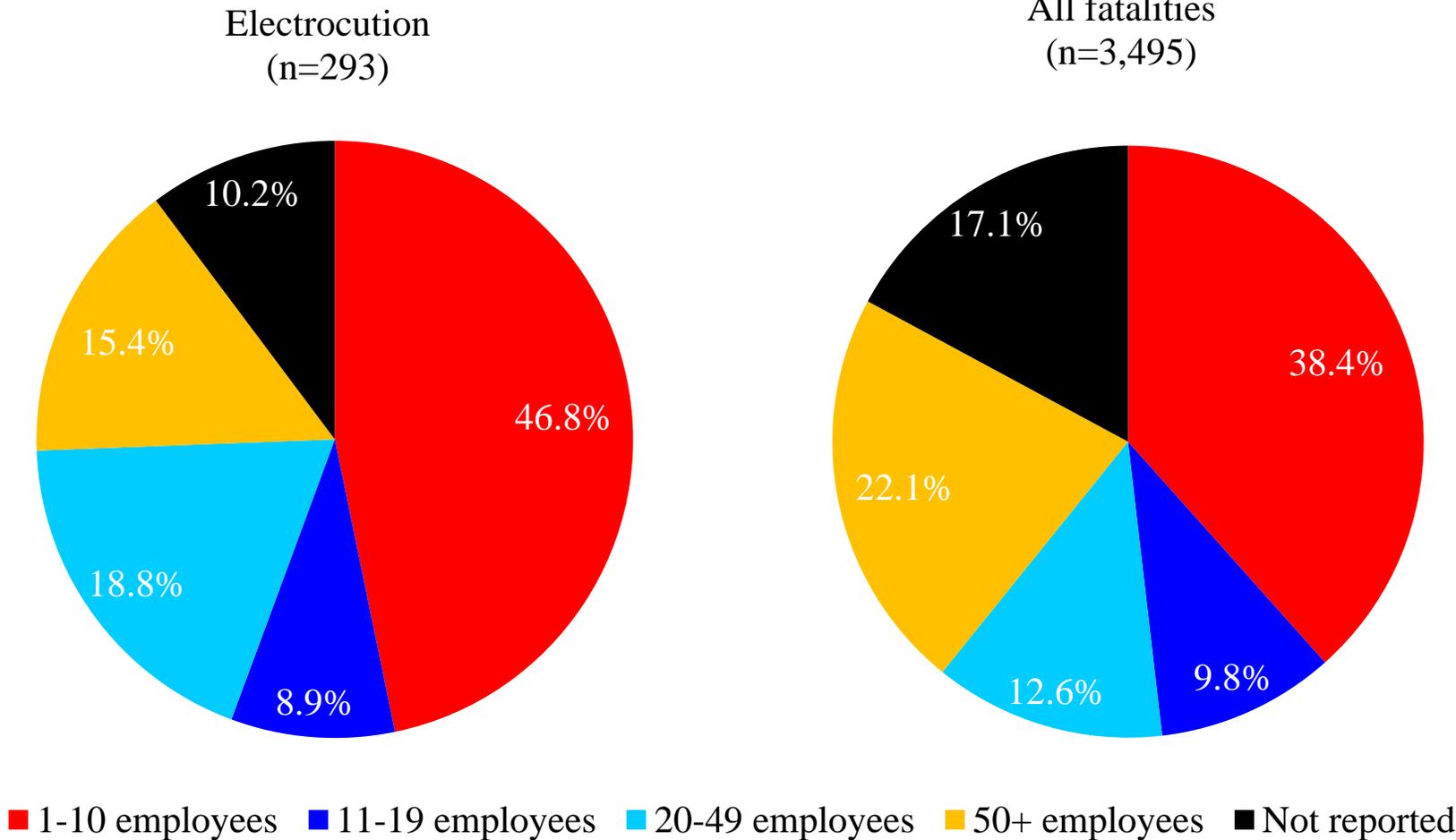
Electrocutions caused by electric parts in construction, by primary source, sum of 2011-2015

Total = 189 deaths



This research was conducted with restricted access to Bureau of Labor Statistics (BLS) data. The views expressed here do not necessarily reflect the views of the BLS.

**Electrocution deaths were more likely to occur among small establishments.
(Wage-and-salary workers; sum of 2011-2015)**

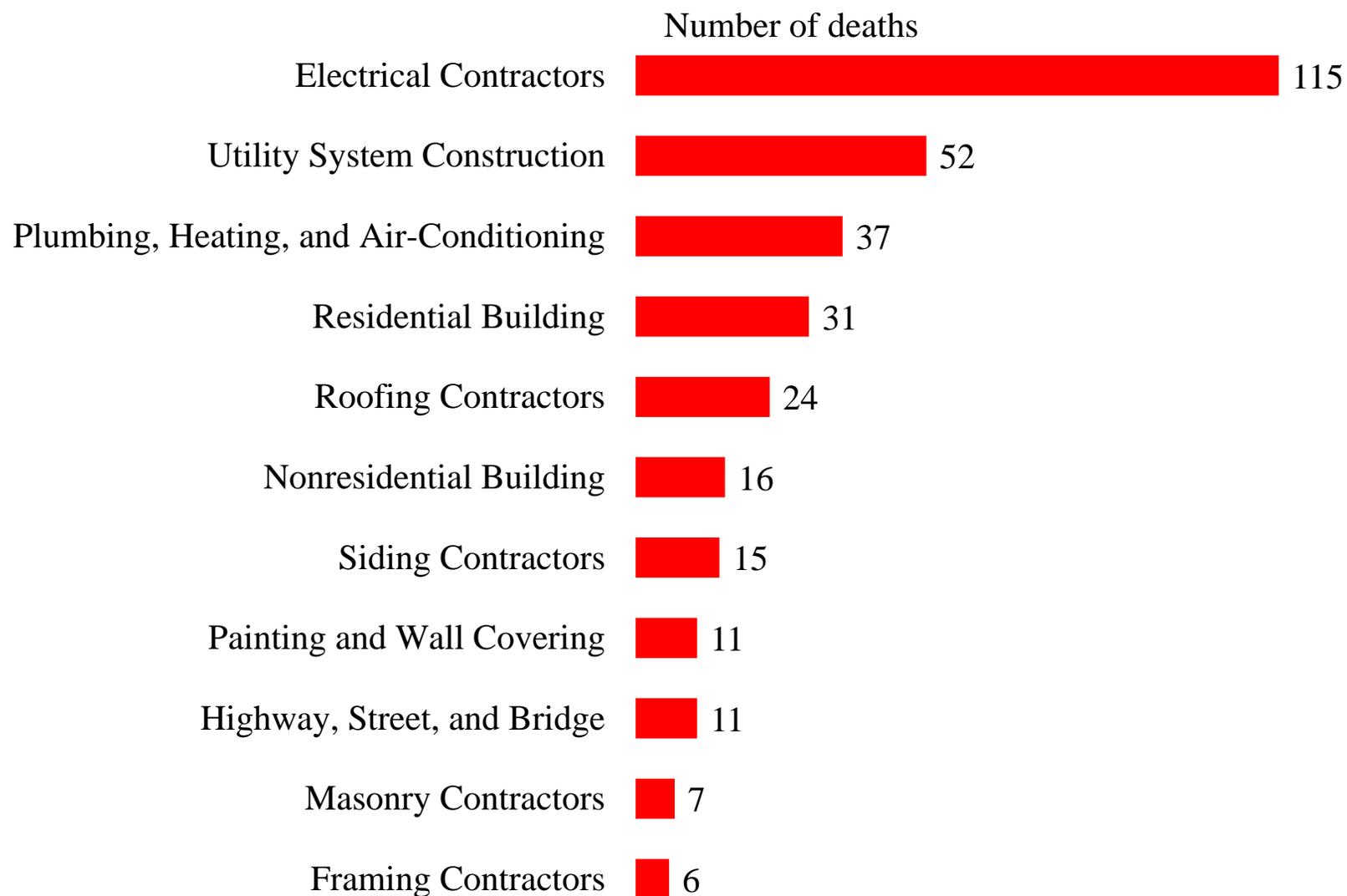


Note: Self-employed workers were excluded.

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.

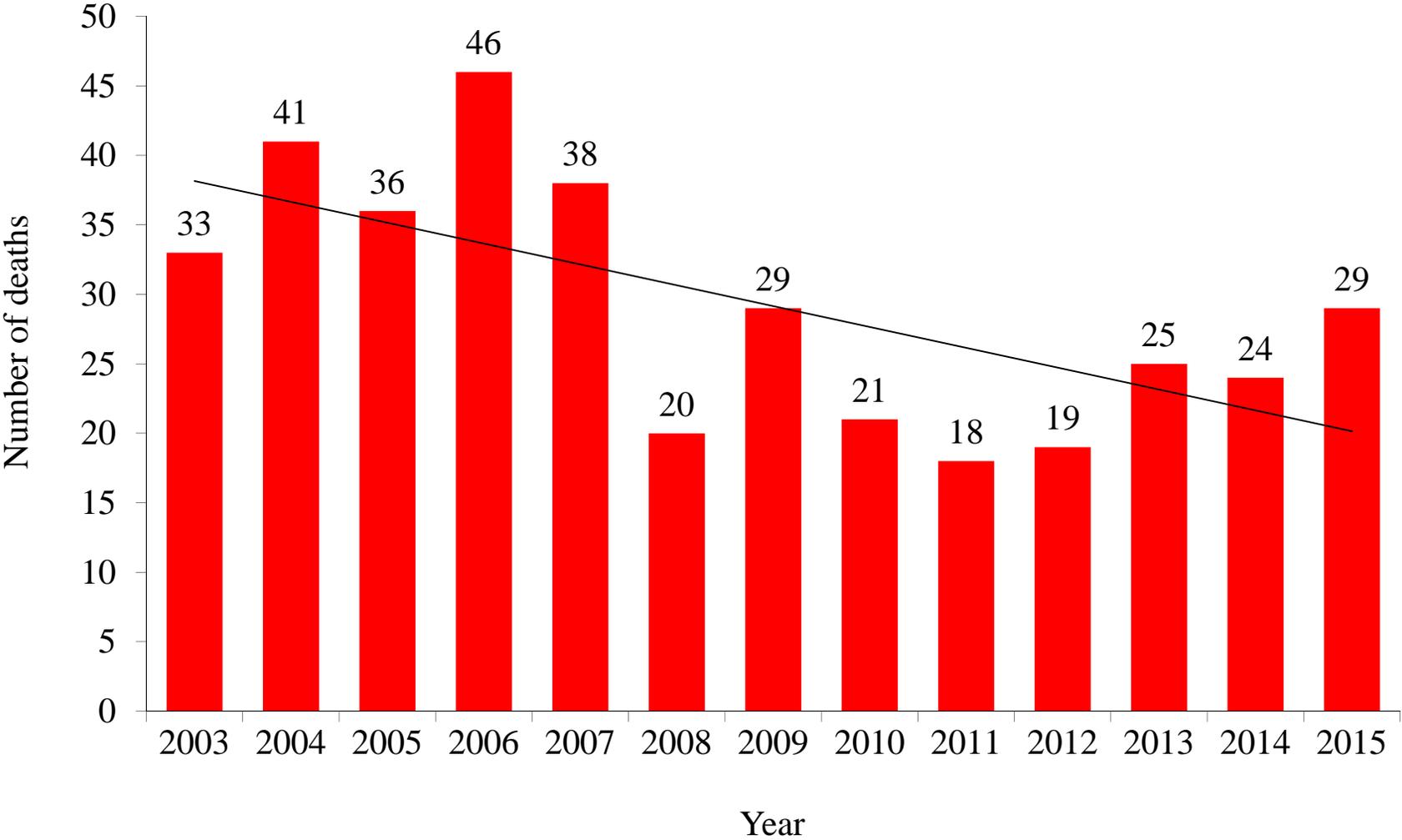
II. Electrocutions among Construction Subgroups

Electrical contractors had the highest number of electrocution deaths in construction from 2011-2015



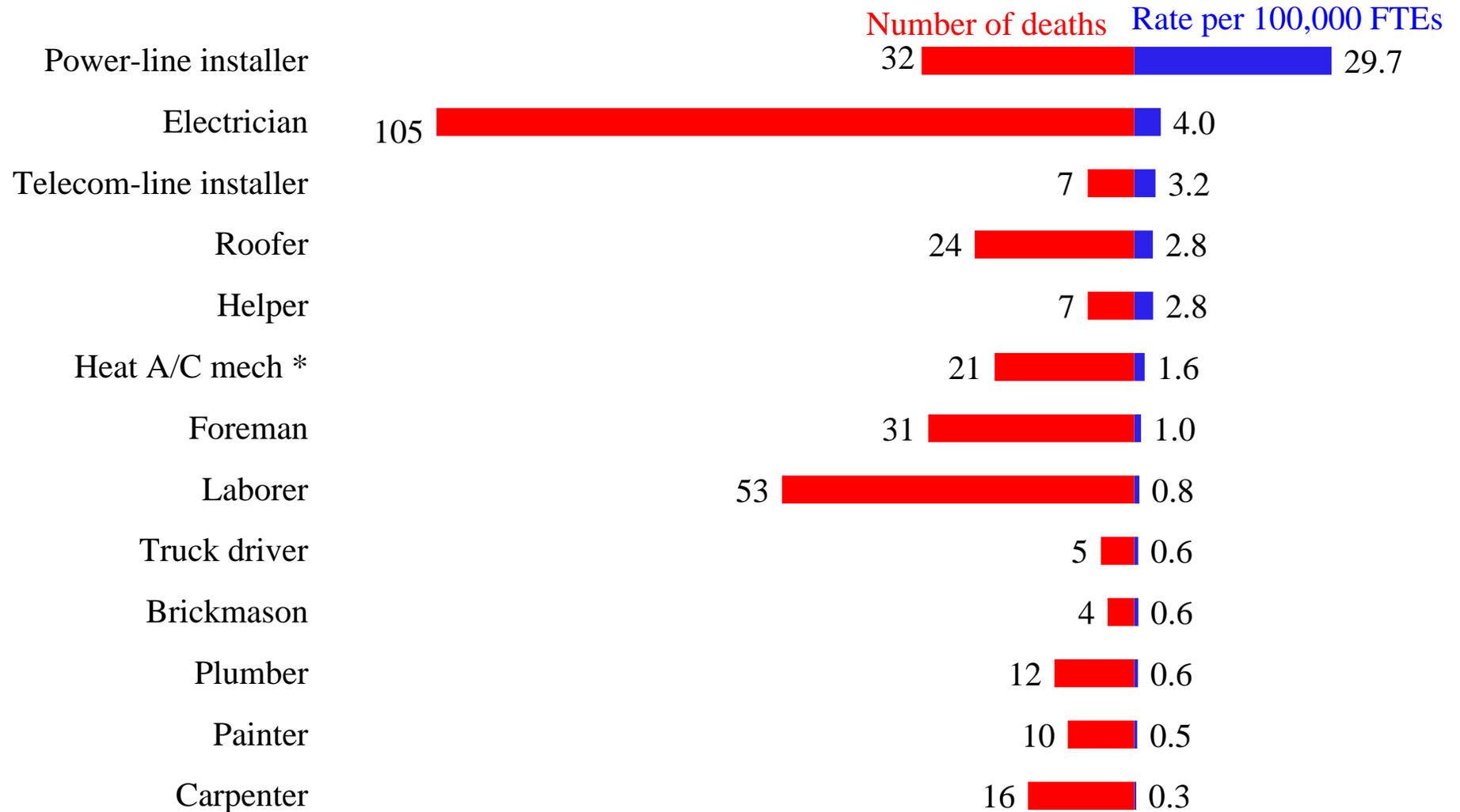
Source: Fatal injury data were generated by the CPWR Data Center with restricted access to BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.

The number of electrocution deaths among electrical contractors in construction has fluctuated but generally declined over time



Source: Fatal injury data were generated by the CPWR Data Center with restricted access to BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.

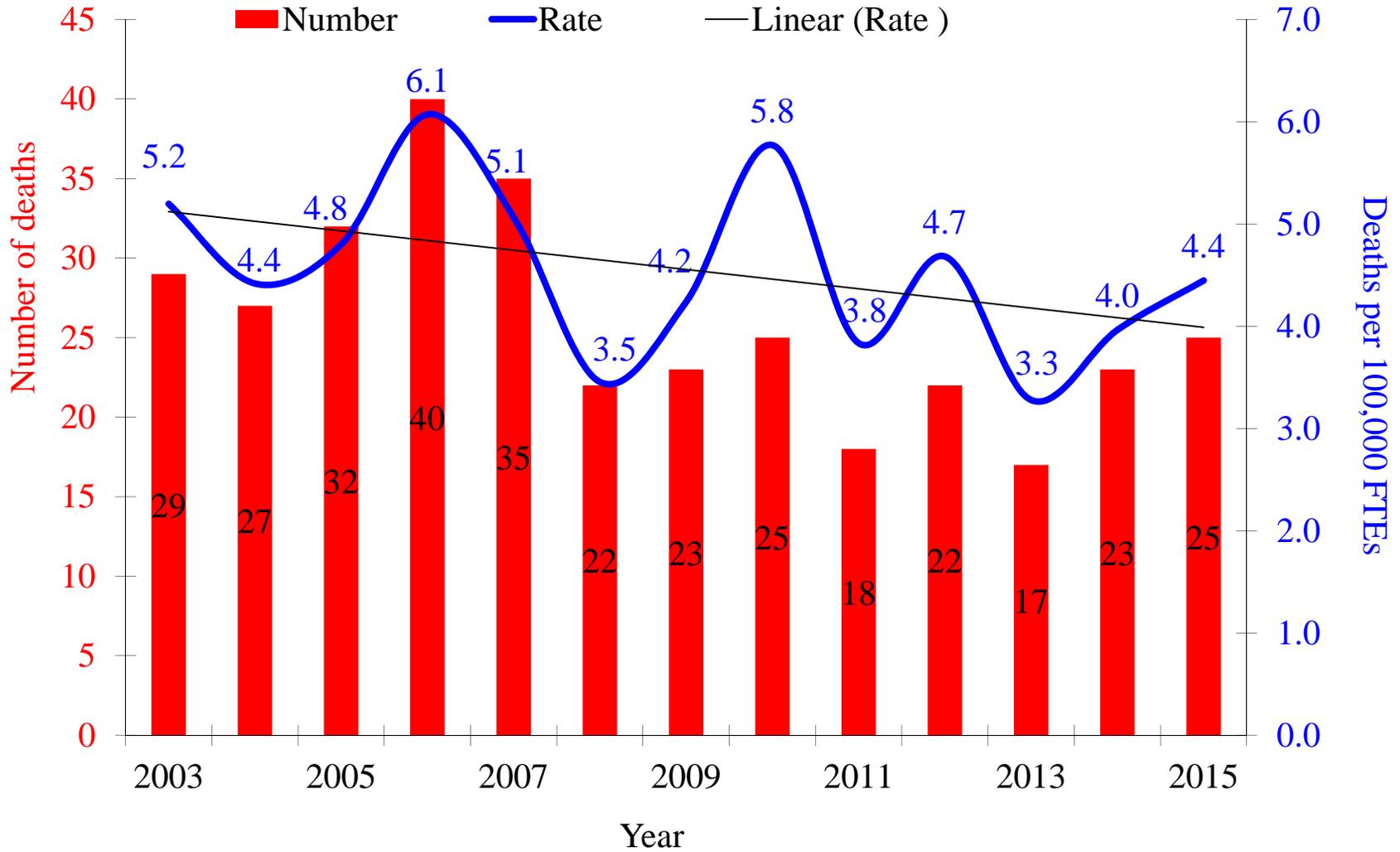
Number and rate of electrocutions in construction, selected construction occupations, sum of 2011-2015



*refers to the Heating and Air Conditioning Mechanics occupation

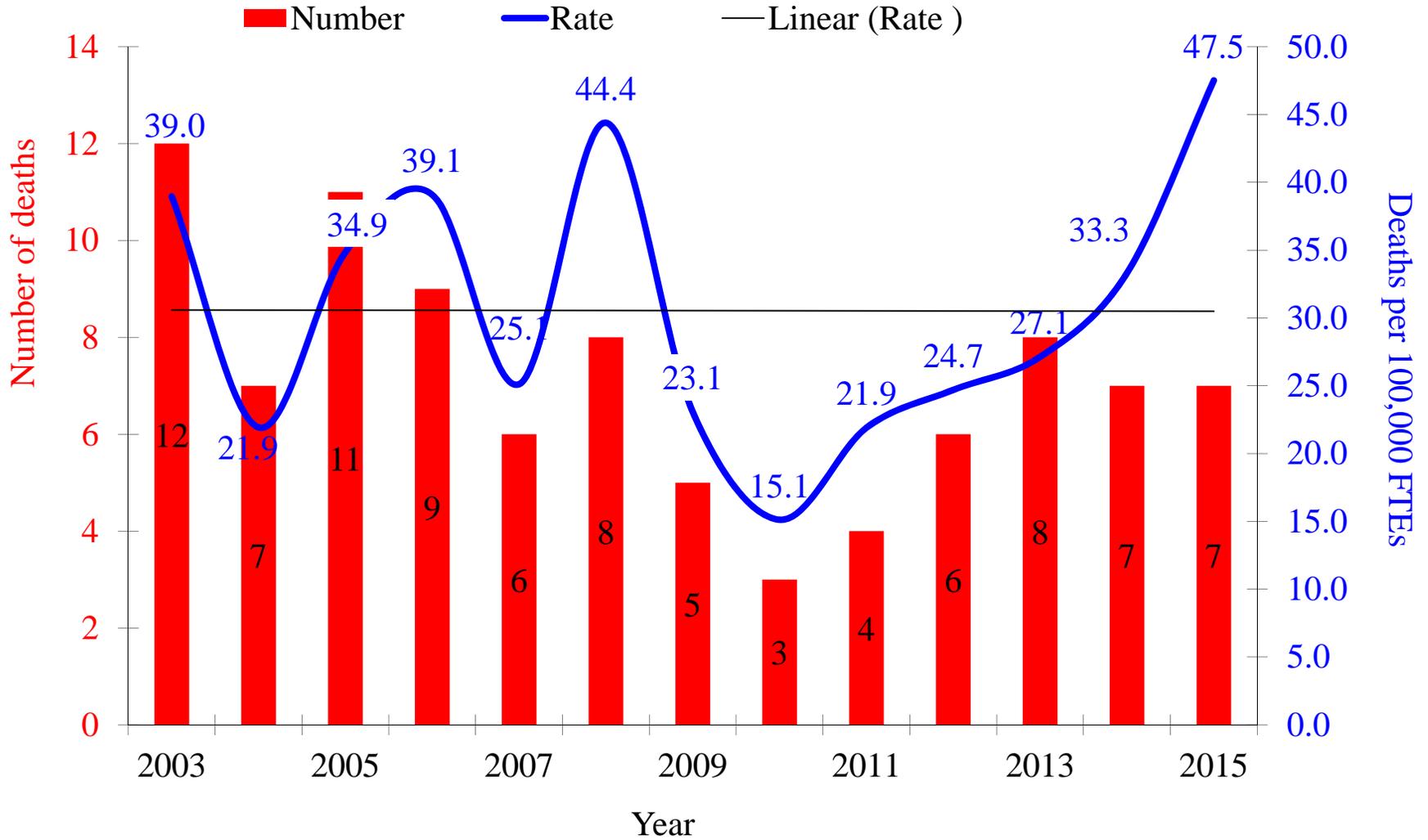
This research was conducted with restricted access to Bureau of Labor Statistics (BLS) data. The views expressed here do not necessarily reflect the views of the BLS.

Number and rate of electrocutions among electricians, 2003-2015



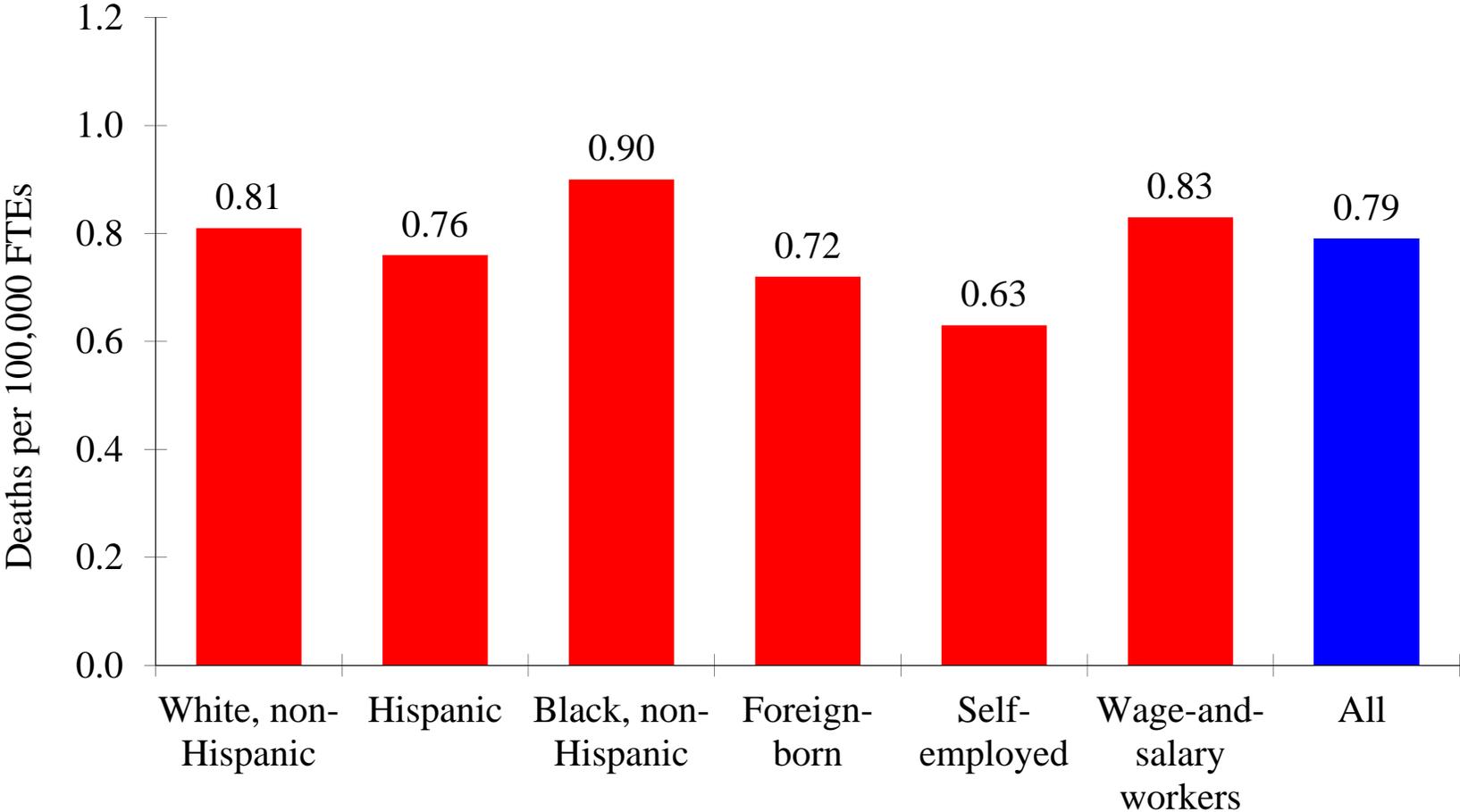
Source: Numbers were obtained from the BLS through special requests. Numbers of FTEs were estimated using the Current Population Survey. Calculations by the authors. The views expressed here do not necessarily reflect the views of the BLS.

Number and rate of electrocutions among power-line installers, 2003-2015



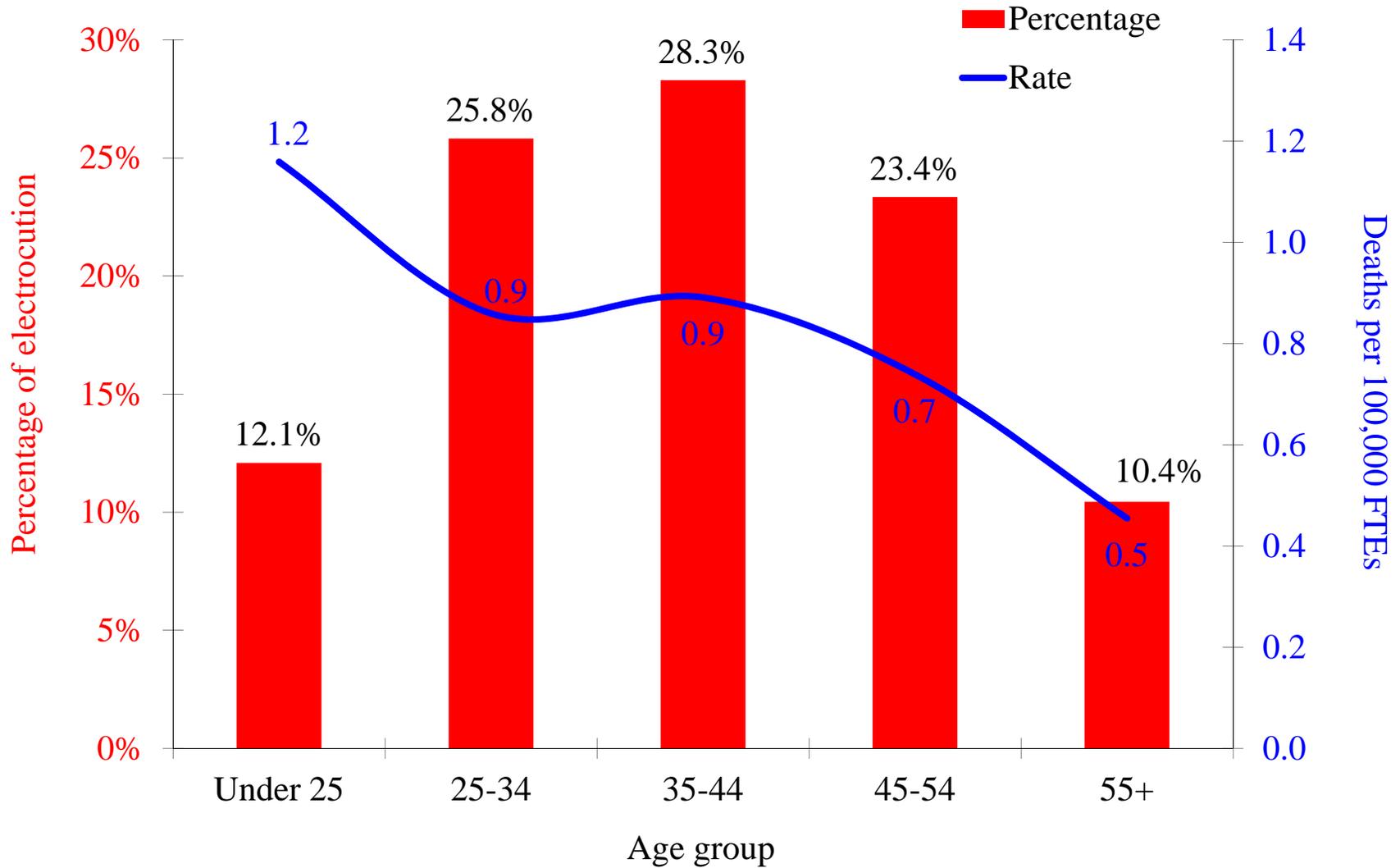
Source: Numbers were obtained from the BLS through special requests. Numbers of FTEs were estimated using the Current Population Survey. Calculations by the authors. The views expressed here do not necessarily reflect the views of the BLS.

Rate of electrocutions in construction, selected worker characteristics, average of 2011-2015



Source: Numbers were obtained from the BLS through special requests. Numbers of FTEs were estimated using the Current Population Survey. Calculations by the authors. The views expressed here do not necessarily reflect the views of the BLS.

Percentage and rate of electrocutions in construction, by age group, average of 2011-2015



III. Electrocution Prevention in Construction