# Fatal and Nonfatal Injuries within Construction Occupations

Death and injury counts vary widely among construction occupations. From 2008 to 2010,[1] the number of work-related deaths among construction laborers (630) far exceeded the number of fatalities in other construction occupations, accounting for 23% of all construction fatalities during that time (chart 42a). Foremen experienced 278 deaths during the same period, ranking as the second occupation with a high fatality number in construction. Construction laborers also had the highest number of nonfatal injuries and illnesses[2] resulting in days away from work (DAFW) in 2010, at 14,700 cases, almost twice as many as carpenters (the next highest occupation) with 8,300 cases (chart 42b).

In terms of injury rates, electrical power-line installers had the highest rate of fatal injuries (56.5 per 100,000 *full-time equivalent workers* [FTEs, *see* Glossary]), which was nearly six times the rate for all construction workers on average (chart 42c). Nevertheless, fatal injury rates have significantly declined for this high-risk occupation since 1992, when electrical power-line installers experienced 149.3 deaths per 100,000 FTEs. For nonfatal injuries, construction helpers, sheet metal workers, and ironworkers were the three occupations with the highest injury rates in 2010 (chart 42d).

While annualized injury rates are a useful measure, lifetime risk estimates assess risk accumulated over a working lifetime. Assuming that a working lifetime for construction workers is 45 years (given that many construction workers start working at age 20 and a number of construction workers are still working at age 65), it is estimated that the probability of a fatality is approximately 0.5% (5.1 per 1,000 FTEs).[3] Ironworkers (31.1 per 1,000 FTEs), electrical power-line installers (26.1 per 1,000 FTEs), and roofers (14.2 per 1,000 FTEs) have a higher lifetime risk of fatal work injuries than any other construction occupations. For comparison, the Occupational Safety and Health Administration considers a lifetime risk of one death in 1,000 workers to be a significant level of risk.[4]

For nonfatal work injuries, about 65% of construction workers may experience DAFW injuries during their working lifetime. When broken down by occupation, construction helpers, sheet metal workers, and ironworkers have the greatest lifetime risk at 90% or more (chart 42f). Despite the high lifetime risk of nonfatal injuries in construction, it is important to note that the risk may be underestimated due to possible underreporting of nonfatal injuries.[5,6]

The fatality data were from the Census of Fatal Occupational Injuries and the nonfatal injury data were from the Survey of Occupational Injuries and Illnesses (*see* page 38). The number of construction workers, expressed as FTEs, was obtained from the Current Population Survey (*see* page 10). Due to coding system modifications and other changes in these data sources, numbers reported on this page may not be directly comparable to those in previous publications.

1. The tabulations are an average of three years of data for more reliable estimates.

2. Illnesses comprise about 3% of all nonfatal injuries and illnesses in construction; therefore, numbers for construction largely represent injuries and will be referred to as such in this chart book.

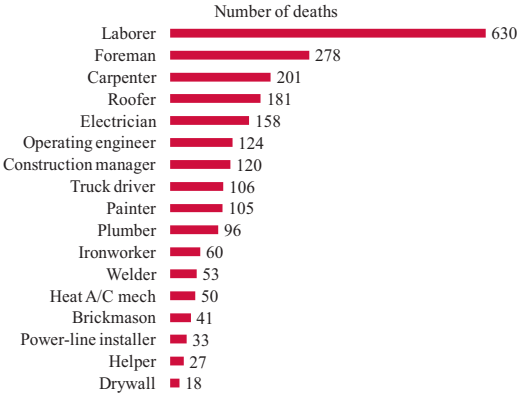
3. Lifetime risks were estimated based on the data from 2003 (when both occupational and industrial coding systems changed) to 2007 (considering that data during the economic downturn may not reflect real risk in construction). Working lifetime risk = $[1 - (1 - R)^y] * 1{,}000$; where R = probability of a worker having a work-related injury in a given year, 1 – R = probability of a worker not having a work-related injury in a given year, $^y$ = years of exposure to work-related injury, $(1 - R)^y$ = probability of surviving $^y$ years without a work-related injury, and $1 - (1 - R)^y$ = probability of having a work-related injury over $^y$ years of employment.

4. Adkins CE. 1993. Occupational safety and health. In Burke TA, Tran NL, Roemer JS, & Henry CJ (eds). Regulating Risk: The Science and Politics of Risk. Washington, DC: ISIC Press, 23-24.

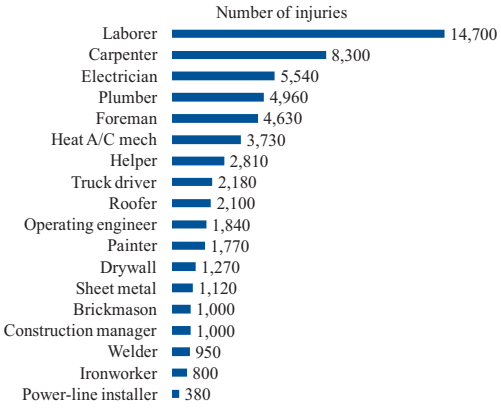
5. Dong X, Fujimoto A, Ringen K, Stafford E, Platner J, Gittleman J, & Wang X. 2011. Injury underreporting among small establishments in the construction industry. *American Journal of Industrial Medicine*, 54:339-349.

6. U.S. House of Representatives. 2008. *Hidden Tragedy: Underreporting of Workplace Injuries and Illnesses. A Majority Staff Report by the Committee on Education and Labor*. http://www.cste.org/dnn/Portals/0/House%20Ed%20Labor%20Comm%20Report%20061908.pdf (Accessed August 2012).

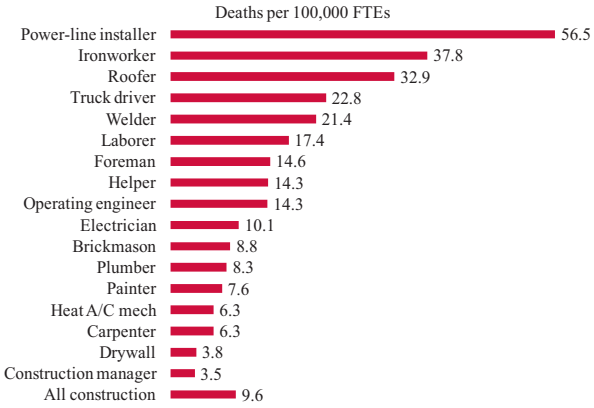
## 42a. Number of fatalities, selected construction occupations, 2008-2010 total (All employment)



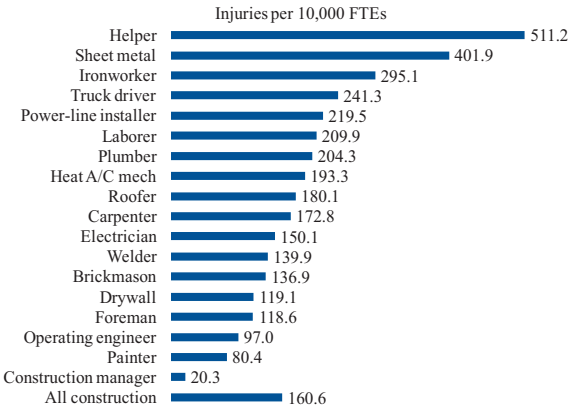

## 42b. Number of nonfatal injuries resulting in days away from work, selected construction occupations, 2010



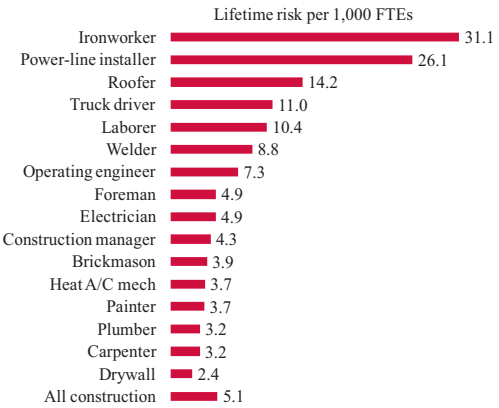

## 42c. Rate of fatalities, selected construction occupations, 2008-2010 average (All employment)



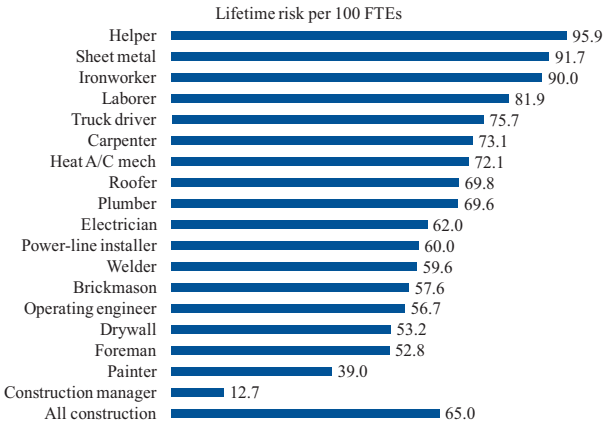

## 42d. Rate of nonfatal injuries resulting in days away from work, selected construction occupations, 2008-2010 average




## 42e. Lifetime risk of fatal injuries, selected construction occupations (All employment)




## 42f. Lifetime risk of nonfatal injuries resulting in days away from work, selected construction occupations




*Note:* Charts 42b, 42d, and 42f - Data cover private wage-and-salary workers only.

*Source*: Charts 42a, 42c, and 42e - Fatality numbers were estimated from the Census of Fatal Occupational Injuries. 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. Numbers of FTEs were estimated from the Current Population Survey. Calculations by CPWR Data Center.
Charts 42b, 42d, and 42f - Numbers of nonfatal injuries were from the U.S. Bureau of Labor Statistics, Survey of Occupational Injuries and Illnesses. Numbers of FTEs were estimated from the Current Population Survey. Calculations by CPWR Data Center.