



Fatal Falls Among Massachusetts Construction Workers

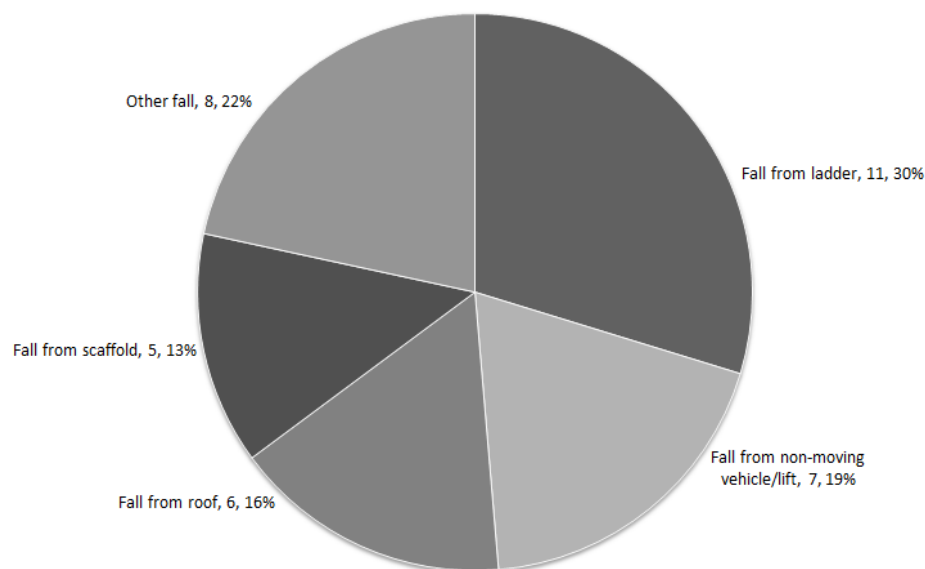
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Construction workers create the structures that shape our lives. They build our homes and schools, repair our roads and bridges, create office parks, supermarkets, hospitals, sports arenas... and they are at high risk of being fatally injured on the job. In Massachusetts over the last five years, 86 construction workers were fatally injured at work – more workers than in any other industry. Nearly half of these workers (37 of 86) fell to their deaths. The rate of fatal falls among construction workers was almost fifteen times the average rate for all workers in the state (5.4 versus 0.4 deaths per 100,000 full-time workers). This special topic report focuses on fatal falls to a lower level in construction.

Falls were the leading cause of death among construction workers.

- During 2012-2016, an average of seven construction workers fell to their deaths each year. Falls to a lower level were the leading cause of death among construction workers, accounting for almost half of all construction worker deaths (43%, 37 of 86).
- Of the 37 fatal falls to a lower level in construction workers, half occurred at residential sites (49%, N=18).
- The rate of fatal falls to lower levels among construction workers (5.4 deaths per 100,00 full-time equivalent workers) – was about 15 times the overall rate for all industry sectors (0.4 deaths per 100,000 workers).
- The greatest number of fatal construction falls were from ladders (30%, N=11), lifts or non-moving bucket trucks (19%, N=7), roofs (16%, N=6), and scaffolds (14%, N=5). (Chart 1). Of the 18 deaths at residential sites, seven were from ladder falls, five from roofs, and four from scaffolds.

Chart 1. Types of Fatal Falls to a Lower Level in Construction Massachusetts, 2012-2016 (N=37)



Source: Occupational Health Surveillance Program, MA FACE and CFI, 2012-2016.



Carpenters, laborers, and roofers had the highest number of fatal falls to a lower level.

- Carpenters (19%, N= 7), laborers (19%, N=7), and roofers (16%, N=6) accounted for the greatest number of fatal falls to a lower level among workers in the Construction industry (Table 1).
- Whereas falls to a lower level accounted for 17% of all fatal occupational injuries in the state, they accounted for the majority of the deaths among roofers and construction laborers (Table 1).
- All roofers and construction laborers who suffered a fatal injury at residential construction sites were hurt in falls. For carpenters working at residential sites, 63% of all fatal injuries were from falls.

Table 1. Number and Percent of Fatal Falls to a Lower Level in the Construction Industry by Select Occupations, Massachusetts, 2012–2016

Occupation	Total Number of Fatal Injuries	Number of Fatal Falls	% of Fatal Injuries Due to Falls	Number of Fatal Falls at Residential Sites
Carpenters	14	7	50%	6
Construction laborers	13	7	54%	3
Construction contractors	9	0	0%	0
Painters	9	4	44%	3
Roofers	8	6	75%	4
Electricians	5	2	40%	1
Plumbers, Pipefitters, and Steamfitters	5	1	20%	0
Masons, Iron and Steel workers, and other workers	23	10	43%	5
All Construction occupations	86	37	43%	27
All Occupations	337	56	17%	

Source: Occupational Health Surveillance Program, MA FACE and CFOI, 2012-2016.



Industry sub-sector

- Roofing contractors accounted for more fatal falls to a lower level (22%, N=8) than any other sub-sector within the Construction industry. The painting and wall covering subsector had four deaths from falls.
- At residential construction sites, all fatal injuries in the roofing and siding sub-sector were from falls, and in the painting and wall covering industry, three in four deaths were from falls.

Table 2. Distribution of Fatal Falls to a Lower Level in the Construction Industry by Selected Industry Sub-sector, Massachusetts, 2012–2016

Industry Sub-sector	Number of All Fatal Falls	% of All Fatal Falls in Construction	Number of Fatal Falls at Residential Sites
Specialty Trade Contractors	27	73	13
Foundation, Structure, & Bldg. Exterior Work	14	38	8
- <i>Roofing, Siding, & Sheet Metal Work</i>	9	24	6
- <i>Structural Steel Erection & Precast Concrete</i>	3	8	0
- <i>Masonry or Framing Work</i>	2	5	2
Building Finishing Work (Carpentry, Painting, Wall covering)	5	14	3
Building Equip. Work (Plumbing/HVAC, Electrical)	5	14	1
Other Specialty Trade Work	3	8	1
Other Construction Sub-sectors	10	27	5
Residential Building Construction	6	16	5
All Construction	37	100	18

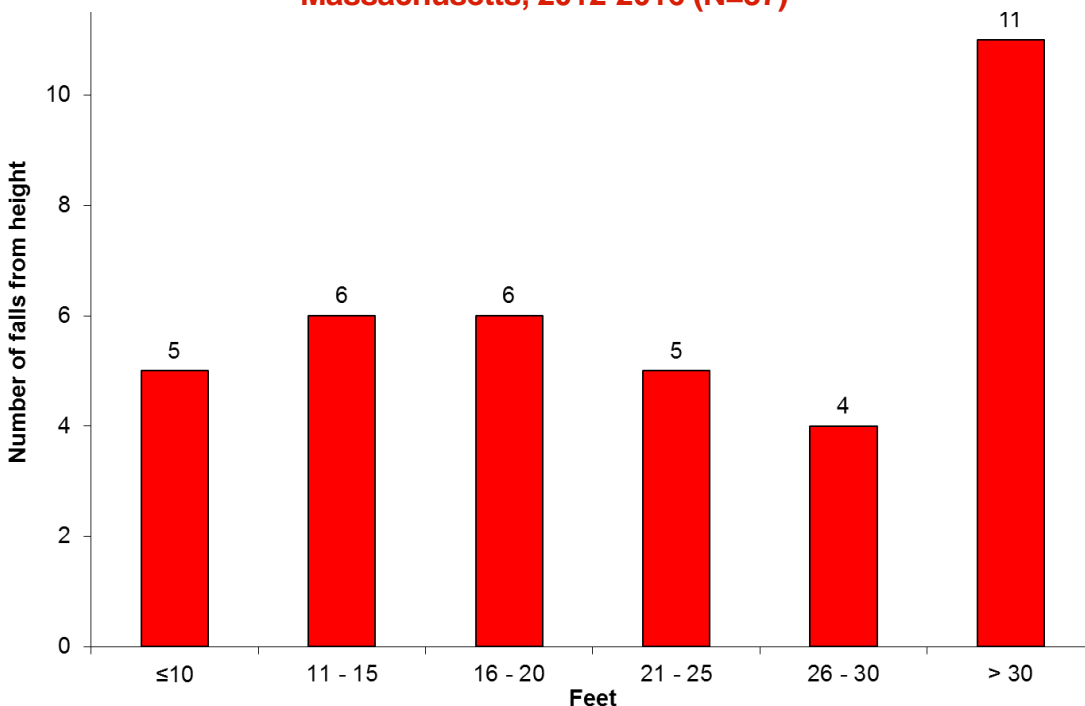
Source: Occupational Health Surveillance Program, MA FACE and CFOI, 2012-2016.



A majority of fatal falls to lower levels in the construction industry were from heights of 25 feet or less.

- Height information was available for all of the 37 fatal falls to lower levels in the Construction industry. The heights ranged from two feet to 150 feet. Of these 37 fatal falls, 59% (22 fatalities) were from heights of 25 feet or less (Chart 2), with 11 fatal falls (30%) from heights of 15 feet or lower. Eleven falls (30%) were from heights of greater than 30 feet.
- At residential sites, the average height of fall was 21 feet. At non-residential sites, the average height of fall was 41 feet.

Chart 2. Fatal Falls to a Lower Level in the Construction Industry by Height of Fall Massachusetts, 2012-2016 (N=37)



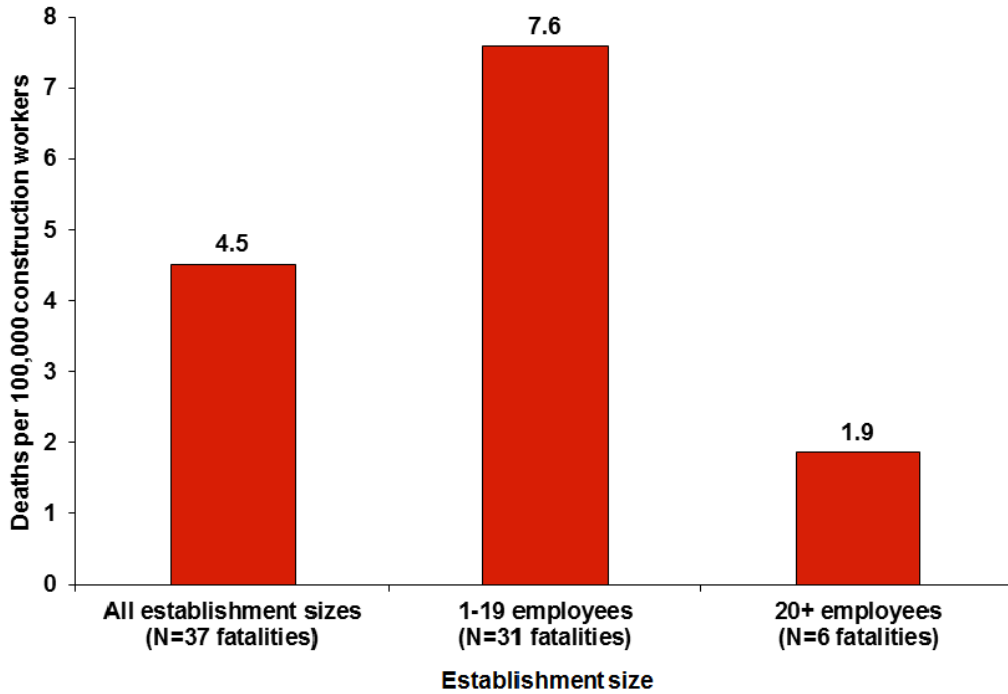
Source: Occupational Health Surveillance Program, MA FACE and CFOI, 2012-2016.

Fatal falls in the construction industry were concentrated in small establishments.

- Twenty-five of the 37 fatal falls to lower levels in the Construction sector (68%) involved workers employed in establishments with 10 or fewer employees. The fatal fall rate for construction establishments with 19 or fewer employees was higher (7.6 deaths per 100,000 workers) than the rate for establishments with 20 employee or more (1.9 deaths per 100,000 workers (Chart 3).
- Ten of the 37 fatal falls were self-employed workers (27%).
- At residential construction sites, all of the fatal fall victims were employed by small contractors with 10 or fewer employees. Eight of these were self-employed.
- Notably, establishments with fewer than 11 employees are not routinely inspected by OSHA unless a fatality occurs.



Chart 3. Rate of Fatal Falls to a Lower Level in Construction by Establishment Size (number of employees) Massachusetts, 2012-2016



Source: Occupational Health Surveillance Program, MA FACE and CFOI, 2012-2016.

NOTE: Rates by establishment size calculated using 2013-2016 Massachusetts employment estimates for the construction industry from the Quarterly Census of Employment & Wages: https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables. These data include all establishments and their employees in Massachusetts subject to state and federal unemployment compensation laws. In computing rates, fatalities among self-employed workers (10 deaths) were excluded in order to maintain consistency with the denominator (employment) data.

Demographic profile of the 37 workers

Male	37
Age (years)	Range 19-72
<30	5
30-39	3
40-49	12
50-59	11
60 and older	6
Average age	46
Race/ethnicity	
White non-Hispanic	35
Hispanic	2
Foreign-born	9
Europe	5
South America	3
Central America and Caribbean	1

Source: Occupational Health Surveillance Program, MA FACE and CFOI, 2012-2016.



Preventing falls in construction.

It is not surprising that construction workers are at high risk of falls given the nature of their work. But these falls should not be simply accepted as part of the job. We know how to prevent falls in construction:

- **Plan** ahead to get the job done safely.
- **Provide** the right equipment.
- **Train** everyone to use the equipment safely.



Contractors and construction workers and their unions, as well as builders, equipment designers, homeowners – even architects who design our buildings – have critical roles to play in reducing falls in construction. A nationwide campaign to reduce falls in construction is underway. Log on to the campaign website to learn what you can do to make sure that the workers building our homes get to go home. **www.stopconstructionfalls.com**

Resources

**Massachusetts Department of Public Health (MDPH)
Massachusetts Fatality Assessment and Control Evaluation (MA FACE) Project
Fall Prevention Brochures** in English, Spanish or Portuguese.

- Ladder safety for residential contractors
- Scaffold safety for residential contractors
- Falls in construction: Myths and facts
- Personal fall arrest systems for residential construction

Accessible online: www.mass.gov/dph/FACE

Hard copies can be ordered from MDPH: (800) 338-5223; MA.FACE@state.ma.us

Massachusetts Department of Industrial Accidents (DIA)

Safety Training Grants. Grants are available for providing workplace health and safety training to employees and employers. Any company covered by the Massachusetts Workers' Compensation Insurance Law is eligible to apply for these grants.

www.mass.gov/dia/safety

Massachusetts Department of Labor Standards (DLS)

Safety and Health On-site Consultation Program

Provides free consultation services to help small employers improve their safety and health programs, identify hazards and train employees.

(617) 969-7177; www.mass.gov/dls

The Center for Construction Research and Training

Construction health and safety materials

www.cpwr.com

National Institute for Occupational Safety and Health (NIOSH)

Construction health and safety resources and materials

www.cdc.gov/niosh/construction

Occupational Safety and Health Administration (OSHA)

Construction health and safety resources and materials

www.osha.gov/doc/index.html

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