FALL INJURIES & PREVENTION IN CONSTRUCTION

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Jessica Bunting, MPH
Overview

I. Introduction/background
II. Trends and patterns of fatal and nonfatal falls
III. Social network analysis of the reach of the Falls Campaign
IV. Q&A
Introduction
National Campaign to Prevent Falls in Construction
stopconstructionfalls.com

Training & Other Resources

About the Campaign
Interested in joining the Campaign?
Learn how to Get Involved!
The Campaign to Prevent Falls in Construction began in 2012 with construction industry stakeholders seeking a way to raise awareness. Falls from heights

Keep Your Fall Prevention Program Alive All Year Long
The 2019 Stand-Down may be over, but fall prevention should be highlighted on jobsites all year long! For ways to build off the momentum of the annual Stand-Down, check out these ideas.

A Social Network Analysis of the Falls Campaign
The reach of this Campaign and the National Safety Stand-Down has been extensive – with millions of workers pausing work to learn more about fall prevention and staying safe on the job. But what about the reach it has over the broader CPWR network?
Construction Fatality Maps
https://stopconstructionfalls.com/fatality-map/

Construction Fall Fatalities in the USA, Jan 1 – June 30, 2018

Previous Fatality Maps
New Contents

- Fatal falls by:
  - Establishment size
  - Occupation
  - Age group

- Reach of the Falls Campaign

Hispanic workers accounted for 30% of construction employment, the highest level since 1990.

More than 90% of construction payroll establishments have fewer than 20 employees

Total = 771,834 establishments

- Fewer than 5: 91%
- 5 to 9: 16%
- 10 to 19: 9%
- 20 to 49: 6%
- 50 to 99: 2%
- 100+: 1%

Small employers lag behind large employers in safety and health performance

<table>
<thead>
<tr>
<th>Practice</th>
<th>Large: 500+ employees</th>
<th>Small: 1-9 employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety &amp; health expectations are clearly defined</td>
<td>77.4%</td>
<td>44.8%</td>
</tr>
<tr>
<td>Safety &amp; health is a top agenda item in all meetings</td>
<td>73.6%</td>
<td>24.1%</td>
</tr>
<tr>
<td>Management participates in all safety &amp; health meetings on the jobsite</td>
<td>52.8%</td>
<td>34.5%</td>
</tr>
<tr>
<td>Safety &amp; health data are used for improvement</td>
<td>50.9%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Prevention through Design (PtD) is practiced</td>
<td>43.4%</td>
<td>24.1%</td>
</tr>
</tbody>
</table>

Source: CPWR. 2016 Second Quarterly Data Report – Safety management and safety culture among small construction firms,
The average age of construction workers jumped 6.4 years in three decades.

The trend of the aging workforce will continue...

<table>
<thead>
<tr>
<th>Year</th>
<th>16 to 24</th>
<th>25 to 34</th>
<th>35 to 44</th>
<th>45 to 54</th>
<th>55 and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>15.8</td>
<td>25.3</td>
<td>27.3</td>
<td>19.7</td>
<td>11.9</td>
</tr>
<tr>
<td>2006</td>
<td>14.8</td>
<td>21.5</td>
<td>23.7</td>
<td>23.2</td>
<td>16.8</td>
</tr>
<tr>
<td>2016</td>
<td>13.3</td>
<td>22.3</td>
<td>20.6</td>
<td>21.3</td>
<td>22.4</td>
</tr>
<tr>
<td>Projected</td>
<td>11.7</td>
<td>22.1</td>
<td>22.2</td>
<td>19.2</td>
<td>24.8</td>
</tr>
</tbody>
</table>

Trends of Fatal and Nonfatal Falls
In 2017, more than half of fatal falls to a lower level occurred in construction.

- Construction: 367
- Admin Support & Waste Management: 104
- Services: 81
- Transportation and Warehousing: 39
- Manufacturing: 37
- Agriculture, Forestry, Fishing, and Hunting: 30
- Retail Trade: 20
- Wholesale Trade: 18
- Public Administration: 9
- Mining: 5
- Utilities: 3

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.
The number of fatal falls increased but the rate was stable

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the Current Population Survey. Calculations by the CPWR Data Center.
Falls from roofs accounted for one-third of fatal falls to a lower level

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.
Small employers (1-19 employees) accounted for 75% of fatal falls

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Data on employees by establishment size from the QCEW. Calculations by the CPWR Data Center.
Roofers had the highest rate of fatal falls, while laborers had the largest number of fatal falls.

- **Roofers**: 214 fatalities, rate per 100,000 FTEs: 35.9
- **Ironworkers**: 29 fatalities, rate: 22.1
- **Helpers**: 16 fatalities, rate: 11.2
- **Power-line installers**: 5 fatalities, rate: 8.0
- **Welders**: 17 fatalities, rate: 5.8
- **Foremen**: 101 fatalities, rate: 5.4
- **Carpenters**: 164 fatalities, rate: 4.8
- **Laborers**: 242 fatalities, rate: 4.8
- **Painters**: 72 fatalities, rate: 4.8
- **Brickmasons**: 21 fatalities, rate: 4.8
- **Cement masons**: 6 fatalities, rate: 4.1
- **Drywallers**: 19 fatalities, rate: 4.0
- **Sheet metal workers**: 6 fatalities, rate: 3.5
- **Electricians**: 56 fatalities, rate: 3.3
- **Insulation workers**: 4 fatalities, rate: 2.8
- **Heat A/C mechanics**: 27 fatalities, rate: 2.7
- **Plumbers**: 9 fatalities, rate: 0.6
- **Construction managers**: 4 fatalities, rate: 0.1

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the Current Population Survey. Calculations by the CPWR Data Center.
Both number and rate of fatal falls among roofers dropped in 2017

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the Current Population Survey. Calculations by the CPWR Data Center.
The rate of fatal falls decreased 25% among laborers from 2011 to 2017

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the Current Population Survey. Calculations by the CPWR Data Center.
Between 2011-2017, the number of fatal falls increased 65% among Hispanic workers and 29% among non-Hispanic workers.

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Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.
Foreign-born workers, Hispanic workers, and self-employed workers had a higher risk of fatal falls.

Deaths per 100,000 FTEs

- White, non-Hispanic: 3.1
- Hispanic: 4.6
- Black, non-Hispanic: 2.7
- Foreign-born: 5.1
- Self-employed: 3.7
- All: 3.5

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the Current Population Survey. Calculations by the CPWR Data Center.
Rate of fatal falls increased with age

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS. Employment data were from the Current Population Survey. Calculations by the CPWR Data Center.
Older construction workers had a higher risk of fatal falls from ladders than younger workers.

Source: Fatal injury data were generated by the CPWR Data Center with restricted access to the BLS CFOI micro data. The views expressed here do not necessarily reflect the views of the BLS.
Helpers had the highest rate and laborers had the largest number of nonfatal falls

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number of injuries</th>
<th>Injuries per 10,000 FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helper</td>
<td>810</td>
<td>153.2</td>
</tr>
<tr>
<td>Insulation</td>
<td>440</td>
<td>88.2</td>
</tr>
<tr>
<td>Ironworker</td>
<td>290</td>
<td>79.6</td>
</tr>
<tr>
<td>Roofer</td>
<td>1,120</td>
<td>64.0</td>
</tr>
<tr>
<td>Heat A/C mech</td>
<td>1,540</td>
<td>50.9</td>
</tr>
<tr>
<td>Truck driver</td>
<td>670</td>
<td>47.4</td>
</tr>
<tr>
<td>Painter</td>
<td>1,550</td>
<td>46.3</td>
</tr>
<tr>
<td>Foreman</td>
<td>1,790</td>
<td>41.4</td>
</tr>
<tr>
<td>Laborer</td>
<td>5,880</td>
<td>39.7</td>
</tr>
<tr>
<td>Power-line installer</td>
<td>100</td>
<td>37.5</td>
</tr>
<tr>
<td>Drywall</td>
<td>400</td>
<td>35.1</td>
</tr>
<tr>
<td>Carpenter</td>
<td>2,540</td>
<td>32.5</td>
</tr>
<tr>
<td>Cement mason</td>
<td>140</td>
<td>32.0</td>
</tr>
<tr>
<td>Plumber</td>
<td>1,170</td>
<td>28.4</td>
</tr>
<tr>
<td>Operating engineer</td>
<td>610</td>
<td>28.1</td>
</tr>
<tr>
<td>Electrician</td>
<td>1,320</td>
<td>25.6</td>
</tr>
<tr>
<td>Welder</td>
<td>220</td>
<td>23.7</td>
</tr>
<tr>
<td>Sheet metal</td>
<td>140</td>
<td>21.9</td>
</tr>
<tr>
<td>Brickmason</td>
<td>140</td>
<td>12.6</td>
</tr>
</tbody>
</table>

Source: Number of nonfatal injuries are unpublished estimates from the U.S. Bureau of Labor Statistics (BLS), Survey of Occupational Injuries and Illnesses, and were obtained from the BLS through special requests. Numbers of FTEs were estimated using the Current Population Survey. Calculations by the CPWR Data Center.
Workers at small employers (1-19 employees) accounted for 75% of fatal falls in construction payroll employment.

The risk of fatal falls for roofers was 10 times that of all construction combined, but both the number and rate dropped in 2017.

The rate of fatal falls among construction laborers decreased by 25% between 2011 and 2017.

75% of fatal falls involved roofs, scaffolds, and ladders.

Older construction workers had a higher risk of fatal falls from ladders than younger workers.
Evaluating the Reach of the National Campaign to Prevent Falls in Construction

Jessica Bunting
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Using Social Network Analysis, we set out to determine:

1. What organizations are part of the Campaign network and how are they working together?
2. What are the benefits and challenges of participating?
3. Who are the audiences that the Campaign is reaching?
4. Who are the potential audiences that the Campaign could reach through its partners?
5. What encourages partners to become involved and remain involved?
What is a Social Network Analysis?

Social Network Analysis...
- Collects data on who is connected to whom
- How those connections vary and change
- Focus on patterns of relations
- Nodes (people, orgs, etc.)
- Lines (relationships)

What is the Partner Tool?
- Funded by the Robert Wood Johnson Foundation
- Tool to collect, analyze, & interpret data to improve collaboration within networks
- 750+ groups world-wide have used the Tool
Distributed survey to 157 organizations identified as Falls Campaign Partners

77 (49%) responded

- Listed 117 new partners that they work with around the Falls Campaign

274 organizations recognized as being part of the Falls Campaign network
Who are partners reaching with the Falls Campaign?

- Academic, Government & Research: 2,626,526 individuals
- Contractors & Associations: 222,300 individuals
- Unions: 208,500 individuals
- Manufacturers: 112,000 individuals
- Safety Agencies & Insurance: 33,500 individuals

Note: Counts exclude the lead organizations.
What is the impact of the Falls Campaign network?

Falls Campaign partners reported a number of outcomes since participating in the network, detailed in the graph below:

- Improved my organization’s capacity to address falls: 46
- Led to improved relationships between our organizations: 38
- Increased my organization’s knowledge around fall-related injuries: 34
- Improved my organization’s capacity to conduct other fall-related initiatives: 34
- Led to an exchange of resources: 33
- Improved our safety climate: 24
- Led to increased compliance with existing safety regulations: 22
- Improved safety practices at my organization: 21
- Reduced the number of fall-related injuries: 16
- Has not resulted in any change, but we anticipate that it will: 6
- Has not resulted in any change: 3
What is the impact of the Falls Campaign network?

75% noticed an increase in fall prevention activities at their organization or in the industry (n=59).

- 25% noticed a great deal
- 47% noticed a fair amount
- 23% noticed a small amount
- 5% noticed not at all

72% noticed improvements in overall safety and health initiatives with topics other than falls at their organization or in the industry (n=60).

- 14% noticed a great deal
- 61% noticed a fair amount
- 20% noticed a small amount
- 5% noticed not at all
## CPWR Stand-Down Order Form

### 2019 Stand-Down Down Order Form

### NEW! 2019 Hardhat Stickers

**Place Your Order**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Orders</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>445</td>
<td>764</td>
<td>1,243</td>
</tr>
<tr>
<td>Hardhat Stickers</td>
<td>--</td>
<td>50,000</td>
<td>50,000</td>
<td>173,000</td>
<td>259,987*</td>
<td>336,755*</td>
</tr>
<tr>
<td>Hazard Alert Cards</td>
<td>1,800</td>
<td>9,168</td>
<td>14,100</td>
<td>70,125</td>
<td>142,213</td>
<td>277,891</td>
</tr>
</tbody>
</table>
The Campaign:

- Includes diverse organizations
- Large reach in terms of size and types of audiences
- High levels of engagement and activity
- Effective information sharing network
The Falls Prevention Campaign has seen improvements in fall protections, and the rate of fatal falls showed signs of decreasing.

Hispanic, foreign-born, and older workers; workers in small companies; and roofers still have a high risk of fatal falls.

Enhanced fall protection efforts should be targeted and available for small employers.

Falls are preventable; we must continue our efforts.