

CONSTRUCTION FATALITY DIGEST

QUARTERLY REPORT
VOL. 8 NO. 1

January - March 2019



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Topics of Interest

Tenure Study (Part II)
National Heat Awareness Day

“All types of falls (roof, ladder, structure, opening, etc.) accounted for 57.0% (61 events) in the first quarter of 2019”

Falls Account for More than Half of All Events

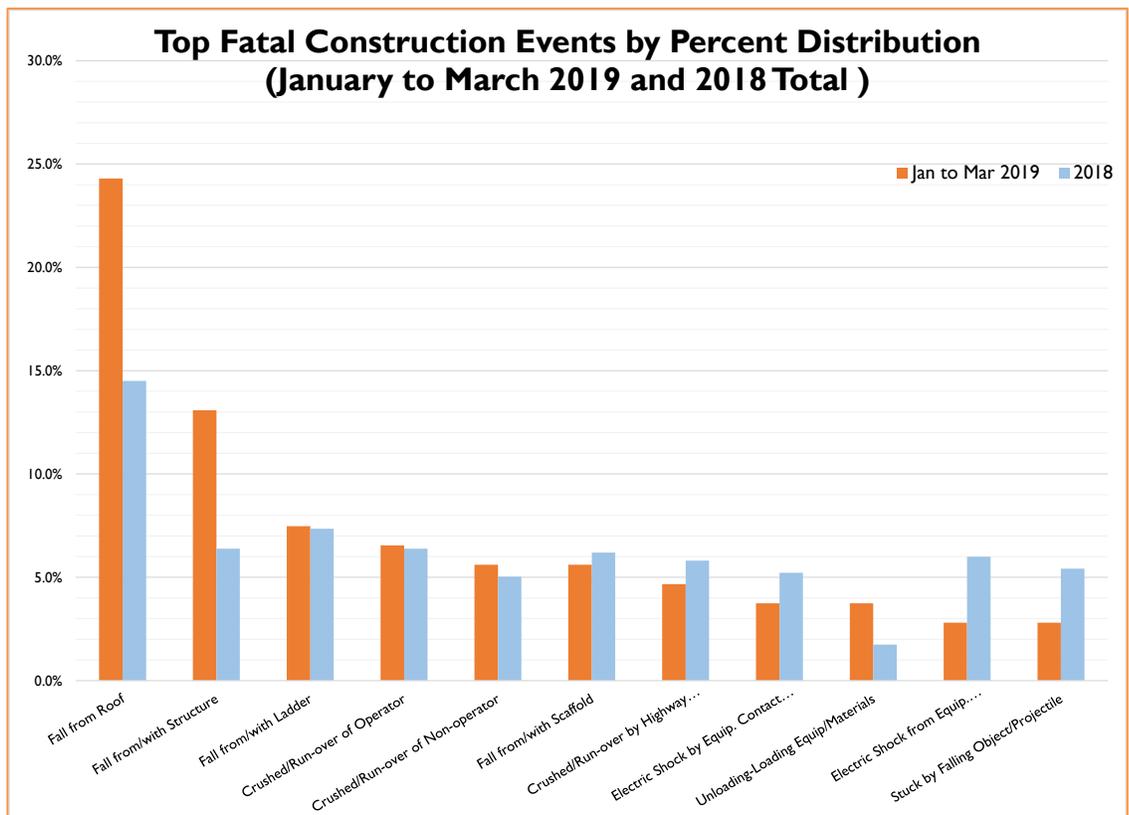
For the first quarter of 2019, CIRPC received 107 reports of fatal events in construction. For the most part the pattern of causes remained similar to the results reported in the previous year (2018), except for falls from roofs and structures.

“Fall from Roof” led all categories with 26 events (24.3%) of the 107 events. This is an increase from previous quarter (22 events, 16.1%). For all of 2018 “Fall from Roof” totaled 75 events (14.5%).

“Fall from/with Structure” was the second leading cause with 14 events (13.1%) followed by “Fall from/with Ladder” with 8 events (7.5%), and “Crushed/Run-over of Operator” with 7 events (6.5%).

There were two notable shifts. “Fall from/Roofs” increased from 16.1% to 24.3% for the current quarter. “Fall from/with Structure” nearly tripled from 4.4% (in the previous quarter) to 13.1% for the first quarter.

All types of falls (roof, ladder, structure, opening, etc.) accounted for 57.0% (61 events) in the first quarter of 2019. This is an increase from 43.8% (60 events) from the previous quarter. The 2018 total amounted to 41.6% (215 events). This is a concerning increase for fall events and if this continues during the summer months (when construction activity increases) the number of fatal fall events will be alarming.



Regional Breakdown

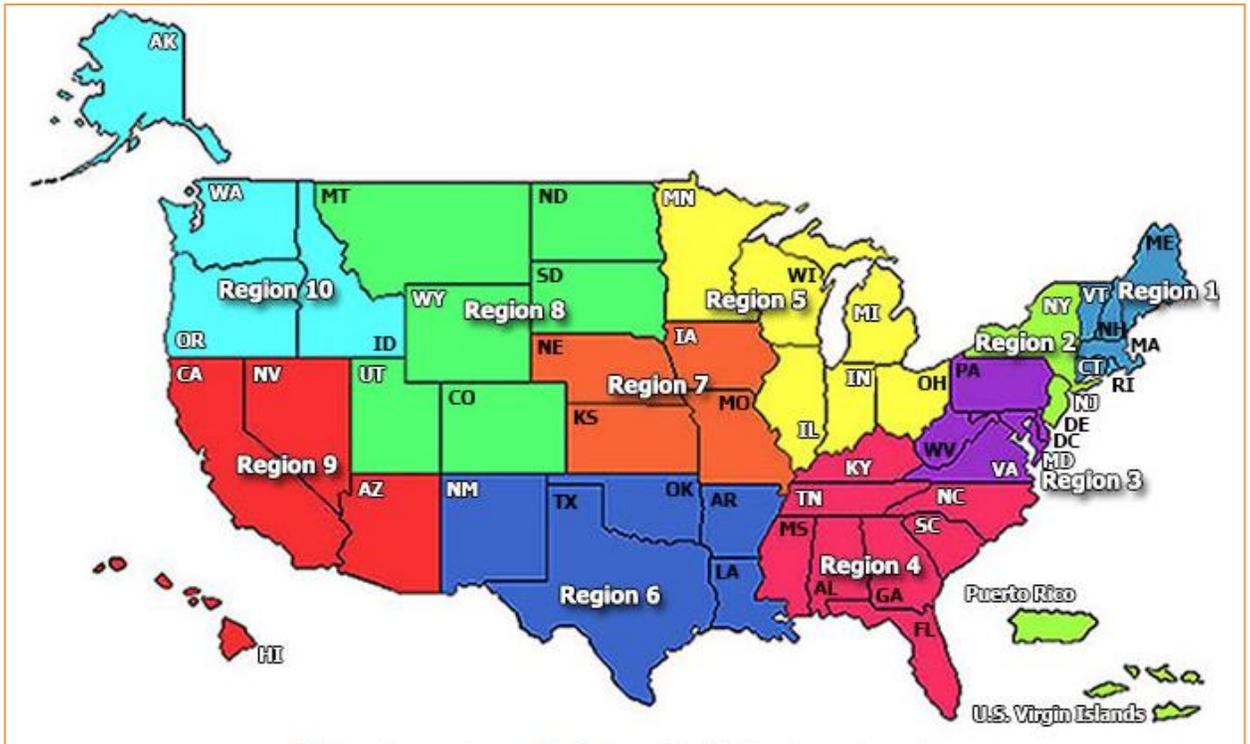
Of the 107 events reported for the first quarter of 2019, 34.6% came from Region 4 (37 events), 16.8% (18 events) came from Region 6, and 9.3% (10 events) from Region 8. Regions 4 and 6 accounted for over 51% of the total.

Of these, 61.7% (66 events) were reported from Federal OSHA states, while 38.3% (41 events) occurred in State Plan states.

The breakdown by state revealed Texas and Florida with the greatest number of events, each with 13 (12.1%), followed by North Carolina with 9 (8.4%).

Fatal Events Reported by OSHA Region

January to March 2019		
Region	# of Cases	Percent
1	2	1.9%
2	7	6.5%
3	8	7.5%
4	37	34.6%
5	9	8.4%
6	18	16.8%
7	5	4.7%
8	10	9.3%
9	7	6.5%
10	4	3.7%
Total	107	100.0%



Fatal Events by NAICS Code

A breakdown of top reported fatal events by NAICS code shows “Roofing Contractors” at the top with 15.9% (17 events) of the total events. Other top codes are “Site Preparation Contractors” with 11.2% (12 events) followed by “Highway, Street, and Bridge Construction” contractors with 8.4% (9 events) and “Commercial and Institutional Building Construction” with 7.5% (8 events).

Fatal Events by NAICS Code			
Code	Description	# of Cases	Percent
238160	Roofing Contractors	17	15.9%
238910	Site Preparation Contractors	12	11.2%
237310	Highway, Street, and Bridge Construction	9	8.4%
236220	Commercial and Institutional Building Construction	8	7.5%
236115	New Single-Family Housing Construction	7	6.5%
238130	Framing Contractors	6	5.6%
238220	Plumbing, Heating, and Air-Conditioning Contractors	6	5.6%
236118	Residential Remodelers	5	4.7%
238210	Electrical Contractors	5	4.7%
238320	Painting and Wall Covering Contractors	5	4.7%
237130	Power and Communication Line and Related Structures Construction	3	2.8%
238170	Siding Contractors	3	2.8%
238310	Drywall and Insulation Contractors	3	2.8%
236210	Industrial Building Construction	2	1.9%
237990	Other Heavy and Civil Engineering	2	1.9%
238120	Structural Steel and Precast Concrete Contractors	2	1.9%
238140	Masonry Contractors	2	1.9%
238350	Finish Carpentry Contractors	2	1.9%
236116	New Multifamily Housing Construction	1	0.9%
237110	Water and Sewer Line and Related Structures Construction	1	0.9%
238110	Poured Concrete Foundation and Structure Contractors	1	0.9%
238150	Glass and Glazing Contractors	1	0.9%
238190	Other Foundation, Structure, and Building Exterior Contractors	1	0.9%
238330	Flooring Contractors	1	0.9%
238390	Other Building Finishing Contractors	1	0.9%
238990	All Other Specialty Trade Contractors	1	0.9%
		107	100.0%

Top Construction Standard Violations During 2019

For the 107 fatal events we received for 2019, 7 case files reported a total of 13 violations of OSHA standards. Since inspectors have up to six months to issue citations on a fatality it is likely that additional citations will be forthcoming.

The violations and their frequencies are listed in the table below. The average number of violations per case with citations issued was 1.86. For the three previous calendar years, 2016, 2017, and 2018 the average number of violations per case was 3.43, 3.36, and 3.58 respectively.

The “Fall Protection” standard is the top violation for the year to date with 6 occurrences, followed by “Electrical, General Requirements” and “Fall Protection Training” each with 2 occurrences.

When comparing CIRPC’s top 2019 calendar year violations with OSHA’s top Fiscal year 2018 standards violated (per www.osha.gov), there are many similarities as might be expected. “Fall Protection”, “Ladders” and “Fall Protection Training” appear in the top standards violated on both CIRPC’s and OSHA’s list. Those that appear on both lists are marked with an asterisk.

Rank	Std #	Description	# of Occurrences
1	1926.501	Fall Protection*	6
2	1926.416	Electrical, General Requirements	2
3	1926.503	Fall Protection Training*	2
4	1904.39	Reporting Fatalities, Hosp., Amputations, and Eye Loss	1
5	1926.1053	Ladders*	1
6	1926.1060	Stairways and Ladders	1

CIRPC Tenure Study Sheds New Light on Construction Injuries (Part II)

In the previous issue of the “Digest” (Vol 7, #4) in Part I of the CIRPC Tenure Study we noted that examination of workers’ compensation injury data for Tennessee in 2014 and 2015 showed that injuries appeared to be relatively high for those new to the work environment. Here in Part II of this study we consider additional findings.

Furthermore, linking compensation data with unemployment data allows consideration of the role played by firm size in the injury picture. As might be expected, the smallest firms (those with 4 or fewer employees) experienced the highest frequency of injury. As firms grow larger, the average is reduced substantially.

It is reasonable to ask “how representative are these findings” since they relate to a single state (Tennessee) and a brief time period (2014-2015). In Part I of this report we noted that for the two year period in Tennessee under study, 44.5 percent of injuries were sustained by those with a year or less of tenure. For those with tenure of six months or less, the percentage is an even more startling 30.1 percent. Several other states reported comparable data that confirmed our findings. For Washington, the 0-6 month estimate is 31.7 percent and for the 0-12 month period it is 47.5 percent. For Ohio, the results are: 0-6 months, 33.6 percent and 0-12 months, 45.6 percent. When compared to the Tennessee data, it seems the phenomenon of heavy concentration of injuries among those with limited employment experience is not just a local phenomenon, but is supported by evidence in other jurisdictions.

What are some of the lessons to be learned? First, it appears that access to workers’ compensation data provides an important supplement to the regularly collected OSHA injury data provided by the Bureau of Labor Statistics (BLS). Secondly, the workers’ compensation findings provide empirical support to the popular observation that new workers are especially prone to injury. Finally, additional attention to the onboarding process and subsequent training for new workers is most likely to yield important dividends in improving construction industry safety.

This study was supported by CPWR through NIOSH cooperative agreement U60-OH009762. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CPWR or NIOSH.

Summary of Fatal Events

Below is a random selection of 32 fatal event summaries from the 107 cases reported for the quarter. These narratives are taken directly from the reports filed by the OSHA's Certified Safety and Health Officials (CSHOs) with only minor editing. The summaries may be useful in daily safety toolbox talks.

CATEGORY: ROOF FALLS

Inspection Number: 1431310

An employee, performing roof tear-off work, was on the roof securing materials with the rest of the crew because it had started raining. The crew lost sight of the employee momentarily. The employee was found on the ground unconscious, but breathing (he later passed away). It is assumed that the employee lost his footing and fell from the roof.

Inspection Number: 1431165

The contractor was hired to repair the sheet metal roof (a damaged low slope roof from recent tornado) of a wooden framed older structure. The contractor was on the jobsite roof mounting new sheet metal roofing with screws. The roof caved in and the victim fell approximately 12 feet to the concrete below.

Inspection Number: 1414484

An approximately thirty year old roofer, was on his first day on the job. The employee was conducting roof repairs four stories up on a sloped roof. The property is a condo community that sustained damage as a result of a hurricane. At the end of the day, the employee unhooked his harness from the safety line and started to walk toward the ladder. He tripped and fell from the roof and landed in a palm tree and then continued to fall landing on a concrete driveway.

Inspection Number: 1440824

An employee, who was working for a roofing contractor, fell through a skylight in the roof of a large warehouse type building.

Inspection Number: 1420204

The victim fell approximately 17 feet to ground level from the roof of a residential community club house that was in construction. He was installing plywood sheathing at the time of the accident. He was taken to the hospital and placed on life support and subsequently died.

CATEGORY: ROOF FALLS (Continued)

Inspection Number: 1418937

An employee was installing gutter guards onto a home while on the roof. He was not wearing any type of fall protection and fell from the roof to the ground. He died from injuries sustained in the fall.

Inspection Number: 1435763

Employee was wearing a gasoline powered leaf blower backpack used to blow off moisture and debris from of the roof while walking backwards. He stepped back and fell through a skylight falling approximately 17 feet to the concrete floor below.

CATEGORY: OTHER FALL EVENTS

Inspection Number: 1422625

An employee performing ductwork installation inside of a building, was using a 10-ft A-frame ladder, fell from the ladder resulting in a fatality.

Inspection Number: 1424035

Victim fell from the fixed ladder of a crane mounted on a floating barge to the deck of the barge below.

Inspection Number: 1440411

A roofing estimator was discovered in his vehicle on a job site unresponsive. A ladder along with personal items were discovered on the ground in addition to blood. There were no eyewitnesses but the scene suggests the estimator fell from the ladder or the roof and suffered a head injury.

Inspection Number: 1422570

The victim fell from unknown height from the truck while he was unloading boards from the bed of the truck.

Inspection Number: 1426384

An employee was working on the second floor of an apartment building under construction installing flooring. The employee went to the van to retrieve materials and fell off the 2nd floor ledge that was missing part of the guardrail.

CATEGORY: OTHER FALL EVENTS (Continued)

Inspection Number: 1421793

An employee, engaged in framing a new 3-story house, was standing at the height of the third floor. He was unloading 2 x 10 lumber from the forklift. He grabbed 3 of the boards and apparently due to the shift in their center of gravity as he slid them off the pile, he was jerked off of his feet. He fell to the ground and struck his head on one of the boards which had landed before he did.

CATEGORY: ELECTROCUTIONS

Inspection Number: 1434533

An employee was running cable lines from a bucket truck. The cable kept getting hung up in the trees and over growth. The employee became frustrated, threw up his hands and made contact with the high voltage electrical lines above him.

Inspection Number: 1441014

An employee in contact with the ground and the rear of a boom truck was electrocuted. The boom truck became energized when it contacted a nearby overhead power line.

Inspection Number: 1430917

Apprentice electrician was installing new overhead 277 volt lighting while on an 8 foot ladder. The employee was shocked and fell from the ladder to the floor.

Inspection Number: 1424653

Employee was on an 8 foot ladder doing an electrical connections job when he was shocked and fatally fell from the ladder.

CATEGORY: STRUCK BY, RUN OVER, CRUSHED BY OPERATING CONSTRUCTION EQUIPMENT/VEHICLE

Inspection Number: 1416753

An employee was struck and covered by debris being pushed by a bull dozer. The employee was pronounced dead at the site.

Inspection Number: 1427630

An employee who was "the above ground watch" for the employee working in a confined space (man hole) was backed over by a concrete truck as he was performing his job.

**CATEGORY: STRUCK BY, RUN OVER, CRUSHED BY
OPERATING CONSTRUCTION EQUIPMENT/VEHICLE
(Continued)**

Inspection Number: 1429060

An employee in a trench was struck by a backhoe bucket. They were in the process of digging and preparing the hole for the septic tank. Employee 2 was operating the backhoe; Employee 1 (deceased employee) was in the hole. According to report, Employee 1 asked Employee 2 (operator) to pick him up by the backhoe bucket. Employee 2 accidentally struck Employee 1 in the back.

Inspection Number: 1431942

An employee operating a bobcat skid steer drove over the edge leading into an open elevator shaft. The skid steer fell approximately 80 feet to the bottom of the elevator shaft. Employee sustained fatal crushing injuries.

Inspection Number: 1420702

Employee was removing snow with a forklift on a construction road that was built to allow for site access. In the process of scooping a bucket of snow, the back tire went off of hillside and the forklift rolled backwards. Employee was ejected from equipment and rolled over by it.

Inspection Number: 1413669

The truck operator drove to top of mound to dump his load and rolled the truck approximately 25-30 feet off and down the mound. He was crushed in cab of the dump truck.

Inspection Number: 1415228

A flagger was hit by a motor vehicle while collecting work zone cones on the shoulder of the road.

Inspection Number: 1413670

The employee was placing traffic cones and was struck by a motorist who failed to negotiate the merge and ran through the cones pinning the victim against another vehicle.

CATEGORY: OTHER FATALITY CAUSES

Inspection Number: 1444104

The victim was found on one of his company's construction sites wrapped around the drive shaft of an industrial wood chipper. According to law enforcement, there were no signs of foul play. It appeared that the victim was working on the piece of equipment and got caught, possibly by his clothing, in the drive shaft, which mangled and ripped his body in half at the waist/lower back area.

Inspection Number: 1431246

Employee was chipping a concrete footing that supported a nine-inch-thick concrete retaining wall already onsite. The footing being chipped was partially in the way of a new footing to be installed. The retaining wall gave way, and what was the top of the retaining wall fell on the employee resulting in his death.

Inspection Number: 1438191

The victim was working to refinish a pool, when the pressurized hose struck him in the head. He was taken to the hospital where he was pronounced dead.

Inspection Number: 1416297

An employee (Foreman) overseeing demolition work was struck by a wire rope cable which snapped while taking down steel beams/columns.

Inspection Number: 1419407

Employee #1, working in the bottom of a trench, 25 feet deep x 30 feet wide x 90 feet long, trying to shoot grade for a retaining wall, was killed when the trench collapsed. Employee #2 was buried to the waist and extricated; Employee #3 was understood to have been operating the excavator. Employees #2 and #3 were transported to hospital, their condition unknown but understood not to be life-threatening.

Inspection Number: 1423091

Employee was standing on a trailer that was being loaded with metal pipes by a loader. The pipes rolled off the back of the trailer and the employee tripped trying to get away from the rolling pipes. He landed on the ground and the pipes rolled over him crushing him to death.

Inspection Number: 1433661

The victim was offloading glass with suction cups and the glass slipped, broke and lacerated the victim's neck resulting in his death.

National Heat Awareness Day

OSHA and the National Weather Service will team up on May 31 to encourage employers and workers to recognize the warning signs for heat illness and keep workers safe. Every year, there are dozens of preventable worker deaths and thousands more workers become ill from extreme heat or humid conditions. Visit OSHA's website (www.osha.gov) for information on the agency's Heat Illness Prevention Campaign, and the National Weather Service website (www.weather.gov) for heat safety tips and resources.



(Information courtesy of OSHA)

We can be contacted at:

Construction Industry Research and Policy Center
 The University of Tennessee
 Stokely Management Center, Room 202
 916 Volunteer Boulevard
 Knoxville, Tennessee 37996
 Phone: 865-974-4422
 E-mail: cirpc@utk.edu



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We would like to thank OSHA's Dave Schmidt for help in obtaining the data used in this newsletter. Comments and suggestions can be directed to John Wagner (jpwagner@utk.edu) as we work together to contribute to a safer construction workplace.