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Construction Fatality Digest



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QUARTERLY REPORT

Topics of Interest:

- **Fatality Case File Statistics**
- **Case File Regional Report**
- **Top Standards Violated**
- **Summary of Fatal Events**

INSIDE THIS ISSUE:

- NAICS Break-down** 2
- Regional Break-down** 2
- Cited Violations** 3
- Trends in Fatalities** 3
- Summary of Events** 4

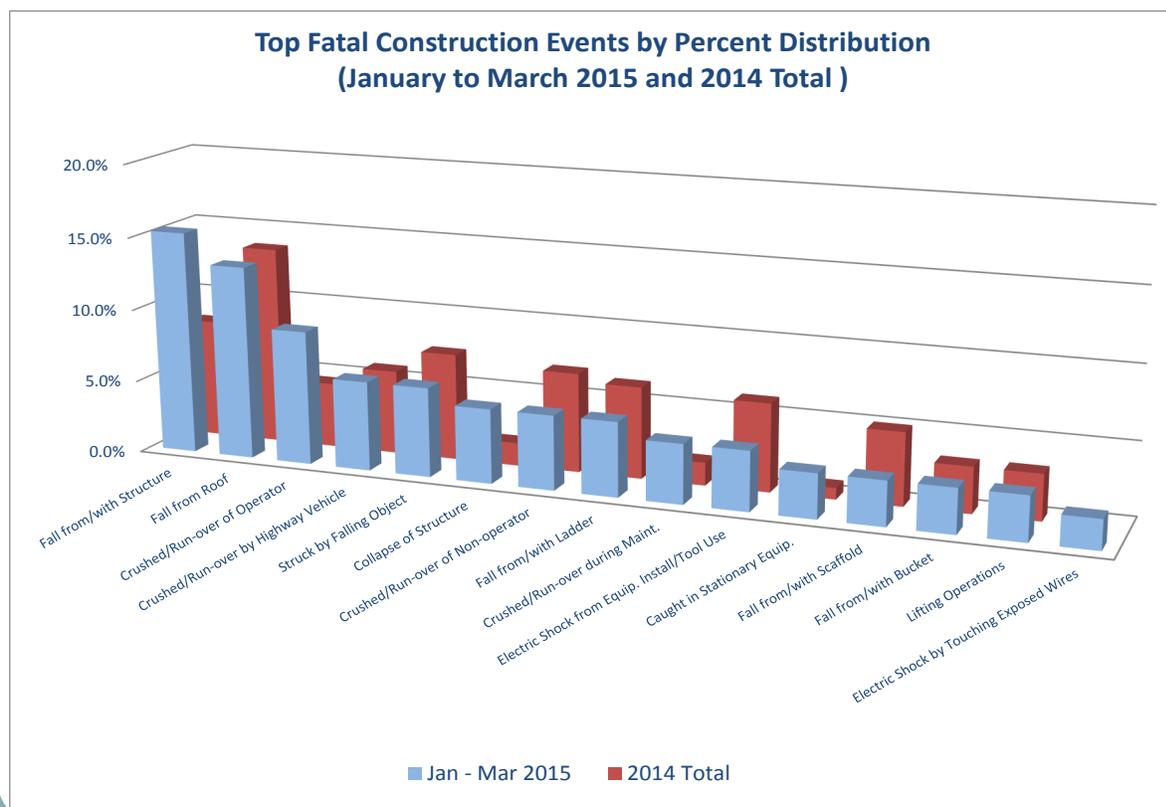


Structure Falls pass Roof Falls as Lead in Fatal Events

“Fall from/with Structure” led all fatal construction events reported to CIRPC for the first quarter of 2015. Of the 98 fatal events for the January to March period, “Fall from/with Structure” accounted for 15.3% (15 events) of the total. This is the first quarter in over a year that “Fall from Roof” has not led all fatal events reported. Rounding out the leading fatality causes for the quarter are “Fall from Roof” at 13.3% (13 events) followed by “Crushed/Run-over of Operator” with 9.2% (9 events), and “Crushed/Run-over by Highway Vehicle” and “Struck by Falling Object” both with 6.1% (6 events).

All types of falls (ladder, roof, vehicle, scaffold, bucket, structure, platform, and opening) accounted for 43.9% (43 events).

When comparing the ranking totals for 2014 with those for the current quarter, there is a sizable variation with “Fall from/with Structure” increasing from 8.1% of the events to 15.3%. “Crushed/Run-over of Operator” doubled from 4.5% to 9.2% and “Collapse of Structure” increased from 1.6% to 5.1%. “Electric Shock from Installation/Tool Use” and “Crushed/Run-over of Non-operator” both decreased from 6.0% to 4.1% and 6.8% to 5.1% respectively.



Regional Breakdown

“Of the 98 fatal events 70.4% (69 events) were in Federal OSHA states, while 29.6% (29 events) were in State Plan States.”

A total of 98 events were reported from the regions in the first quarter of 2015. Of these, 24.5% came from region 6 (24 events), 18 came from region 4, and 13 from region 5.

Of the 98 fatal events 70.4% (69 events) were in Federal OSHA states, while 29.6% (29 events) were in State Plan States.

The breakdown by state has Texas with the greatest number of events, 18 (18.4%), followed by California and New York both with 7 (7.1%) events.

Fatal Events Reported by Region

January to March 2015		
Region	# of Cases	Percent
1	2	2.0%
2	10	10.2%
3	9	9.2%
4	18	18.4%
5	13	13.3%
6	24	24.5%
7	4	4.1%
8	3	3.1%
9	12	12.2%
10	3	3.1%
Total	98	100.0%

Fatal Events by NAICS Code

A breakdown of fatal events by NAICS code shows “Highway, Street, and Bridge Construction” contractors with 11.2% (11 events) of the 98 events. Other top codes are “Roofing Contractors” with 10.2% (10 events), “Site Preparation Contractors” at 9.2% (9 events), and “Structural Steel and Precast Concrete Contractors” with 8.2% (8 events).

Fatal Events by NAICS Code

Code	Description	# of Cases	Percent
237310	Highway, Street, and Bridge Construction	11	11.2%
238160	Roofing Contractors	10	10.2%
238910	Site Preparation Contractors	9	9.2%
238120	Structural Steel and Precast Concrete Contractors	8	8.2%
238320	Painting and Wall Covering Contractors	6	6.1%
238990	All Other Specialty Trade Contractors	6	6.1%
236220	Commercial and Institutional Building Construction	5	5.1%
238130	Framing Contractors	5	5.1%
237120	Oil and Gas Pipeline and Related Structures Construction	4	4.1%
238110	Poured Concrete Foundation and Structure Contractors	4	4.1%
237130	Power and Communication Line and Related Structures Construction	3	3.1%
238210	Electrical Contractors	3	3.1%
238310	Drywall and Insulation Contractors	3	3.1%
235510	Carpentry Contractors	2	2.0%
236116	New Multifamily Housing Construction	2	2.0%
237110	Water and Sewer Line and Related Structures Construction	2	2.0%
238190	Other Foundation, Structure, and Building Exterior Contractors	2	2.0%
238220	Plumbing, Heating, and Air-Conditioning Contractors	2	2.0%
238290	Other Building Equipment Contractors	2	2.0%
234910	Water, Sewer, and Pipeline Construction	1	1.0%
234990	All Other Heavy Construction	1	1.0%
236117	New Housing For-Sale Builders	1	1.0%
236118	Residential Remodelers	1	1.0%
236210	Industrial Building Construction	1	1.0%
237210	Land Subdivision	1	1.0%
238140	Masonry Contractors	1	1.0%
238150	Glass and Glazing Contractors	1	1.0%
238390	Other Building Finishing Contractors	1	1.0%
		98	100.0%



Top Construction Standard Violations

Of the 98 cases in the first quarter of 2015 examined by CIRPC, 3 reported citations issued*. In the 98 cases there were 7 violations of OSHA standards. The average number of violations per case with citations issued was 2.33. For the two previous calendar years (CY2013 and CY2014) the average number of violations per case was 3.86 and 3.24.

The "Fall Protection" standard and the "General Duty Clause" were the top violated standards for the year to date with 2 occurrences each.

When comparing the running total of 2014 calendar year violations with OSHA's "Top 10 Most Frequently Cited Standards" for FY2014 (per www.osha.gov), there are some similarities. The most frequently violated OSHA standards are also found on the quarterly report list ("Fall Protection", "Scaffolding", and "Powered Industrial Trucks").

Top Standard Violations Reported (During Calendar Year 2015)

Rank	Std #	Description	# of Occurrences
1	1926.501	Fall Protection	2
2	5a1	General Duty Clause	2
3	1926.503	Fall Protection Training	1
4	1910.178	Powered Industrial Trucks	1
5	1926.454	Scaffold Training	1

Top 10 Most Frequently Cited Standards (for Fiscal 2014)

1.	1926.501	Fall Protection
2.	1926.120	Hazard Communications
3.	1926.451	Scaffolding
4.	1910.134	Respiratory Protection
5.	1910.178	Powered Industrial Trucks
6.	1910.147	Lockout/Tagout
7.	1926.105	Ladders
8.	1910.305	Electrical, Wiring Methods
9.	1910.212	Machine Guarding
10.	1910.303	Electrical, General Requirements

* Inspectors have up to six months to issue and finalize citations in fatality investigations. During this period citations can be changed or deleted.

Trends in Fatalities - Britain and U.S. Construction Fatalities

In Britain, the construction industry accounts for approximately 5% of the total number of employees, but it also accounts for 31% of all fatal injuries across all industries.

For 2013/2014, Britain experienced 42 fatal construction events. While Britain may have experienced less than one tenth of the fatal events in the U.S. during the same time period the percentage breakdown by cause is strikingly similar.

Fatal falls (roofs, ladders, same levels, etc.) accounted for 47.6% of Britain's total fatal events, which is similar to the U.S. total of 42.6%. "Struck by Moving Vehicle/Machinery" also closely relates to the totals with Britain at 14.2% and the United States with 18.7%.

"Contact with Electricity" represents the major difference between Britain and the U.S. The difference in their percentages might suggest an area for further research to determine the reason why.

Britain and U.S. Fatality Comparison (For the Construction Industry)

Causes	Britain*	US
	2013/2014P	2014
Falls	47.6%	42.6%
Struck by Object	7.1%	7.3%
Struck by Moving Vehicle/Machinery	14.2%	18.7%
Contact with Electricity	7.1%	13.4%
Collapsing Structure	2.4%	1.6%
Other Causes	21.6%	16.4%
	100.0%	100.0%

*Data is from the RIDDOR reporting system
(www.hse.gov.uk/statistics/sources.htm#riddor)

Summary of Fatal Events

Below is a selection of 33 of the fatal event summaries from the 98 cases reported for the quarter. These narratives are taken directly, with only minor editing, from the reports filed by the CSHO's.

CATEGORY: ROOF FALLS

Inspection Number: 933665

Employee was removing a rooftop HVAC system and stepped through an unprotected skylight and fell approximately 16 to 18 feet.

Inspection Number: 963119

An employee was on the roof of an industrial building sealing the seams around existing skylights. The employee either lost his balance or accidentally stepped on the skylight and fell through it landing on the concrete floor, 30 feet below.

Inspection Number: 937690

A framer, while on the roof, fell through a decking/sheathing hole and through the trusses. The framer fell about 14 feet to the ground. He was wearing rope, rope grab, and harness. The rope was too long and not adjusted.

Inspection Number: 970206

The victim was working to install shingles on a cabin at the construction site. There were two employees of the roofing contractor working in one area of the roof of this cabin. One employee heard a noise and turned around to see the victim falling over the edge of the cabin to the ground below. The victim was not wearing a personal fall arrest system.

Inspection Number: 935740

An employee was in the process of securing a blue underlayment to a second story roof dormer of a single family home. The employee slipped and fell approximately 28 feet to the ground below.

Inspection Number: 965718

The victim went on the roof to give an estimate for shoveling a section of snow off the roof. The owner of the building also went on the roof. The contractor fell 25 feet through a skylight.

CATEGORY: OTHER FALL EVENTS

Inspection Number: 965951

An employee was applying adhesive to a window trim, when he walked off the end of the elevated scissor lift. The employee fell approximately 15 feet to the floor below, sustaining head injuries, fractures and fatal internal injuries.

Inspection Number: 968916

An employee was painting from a scissor lift. The lift was fully extended, approximately 20 feet above the ground, and was being moved to different a location. While the lift was moving, it became unstable and tipped over. The victim fell out of lift and struck his head on pavement.

Summary of Fatal Events (Continued)

CATEGORY: OTHER FALL EVENTS (continued)

Inspection Number: 931894

The victim was on a scissor lift and leaning over the scissor lift's top guardrail in a manner that caused the employee to fall an approximate 12 feet off the lift to the ground below.

Inspection Number: 964582

The victim was working from a man-basket mounted on the forks of an all-terrain forklift measuring and marking roof panel and purlin locations when a co-worker started moving the forklift northerly along the west wall of the steel frame aircraft hangar. The victim was approximately 20 feet off the ground, when the forklift started tipping forward and the rear of the forklift rising off the ground. The co-worker started to retract the extended boom and the rear end of the forklift dropped back onto the ground. This action catapulted the victim out of the man-basket. He struck the ground causing severe head injuries.

Inspection Number: 972576

An employee was on the 4th floor of an apartment complex building. He was loading 5 gallons of paint from a forklift onto the balcony of the apartment. While doing so the decreased weight caused a cantilever effect on the forklift platform and he fell 40 feet to the ground below.

Inspection Number: 317644532

An employee was installing sheets of insulation on barn trusses. At the time of the accident, the employee was at the peak (twenty four feet above the ground) of the barn, when he fell through the middle of the structure and struck the ground. At the time of the accident, no fall protection equipment was on-site.

Inspection Number: 966175

The victim was standing on stilts while hanging drywall at a residential construction site, when either he stumbled and fell or the drywall moved towards him, striking him, and pushing him over. The victim fell backwards fatally hitting his head on the ground.

Inspection Number: 974472

An employee was walking/backing away from metal "leg" panels that were stacked against a wall, when they began to shift and fall. While moving away, the employee tripped or slipped causing him to fall. While falling the employee struck the right side of his head on adjacent equipment (or the ground) resulting in fatal head trauma.

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

Inspection Number: 970087

The victim was struck and killed by the blade of a bulldozer when he tried to re-mount the runaway machine after leaving it in gear and without the parking brake engaged.

Inspection Number: 969956

An operator of an excavator was backing out of a service garage, when he was caught between the vehicle roll-over frame and the vertical upright of the garage door, resulting in his death.

Summary of Fatal Events (Continued)

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

Inspection Number: 936908

An employee was working in an aerial lift installing metal joist and cross braces. The employee accidentally activated the lift and was caught between the framing of the lift and the ceiling joist.

Inspection Number: 966328

An employee was operating an aerial lift to access sprinkler piping, which he was painting. The employee was moving the lift, while elevated, and was caught between the lift's basket railing and a pipe. The employee's foot came off the foot control and he was unable to move away. He suffered fatal injuries which lead to asphyxiation.

Inspection Number: 931417

An operator of a Caterpillar pipelayer was standing on a track of the pipelayer while it was idling. The equipment was sitting on an 8 percent slope when it started rolling backwards. The employee was pulled feet first along the top of the track and under the side boom frame that extended over the track. The employee was pulled up to his waist into a six inch clearance between the frame and the track. The employee suffered fatal crushing internal injuries.

Inspection Number: 955612

The victim and an operator were working on a hydraulic leak on a backhoe. While the operator was assisting, he engaged power to the machine, causing the boom to swing, pinning the victim between the boom and frame of the outrigger.

Inspection Number: 963018

Three employees were returning to work in their truck after the lunch break, when they had to wait to enter the site due to the gate being locked. The truck was waiting on a railroad track and was in between two other vehicles. The truck was struck by an oncoming train. All three employees suffered fatal injuries.

Inspection Number: 961568

An employee had pulled his vehicle to the shoulder of the road so that he could connect an arrow board trailer to his truck in order to move the sign. A civilian motor vehicle struck the arrow sign, which then struck him, threw him over the guardrail, and into the nearby woods fatally injuring him.

Inspection Number: 317643252

The victim was working as a ground man. The victim was putting together parts for the lineman, working in a bucket truck, to install on the overhead power line. The victim was standing at the tailgate of the bucket truck, when a drunk driver drove through the work zone and struck and pinned his legs between the car and the back of the bucket truck. The victim suffered massive injuries to both legs and passed away.

Summary of Fatal Events (Continued)

CATEGORY: ELECTROCUTIONS

Inspection Number: 969073

The victim was helping finish the installation of a metal roof. The victim was on the peak of the metal roof and another employee was in a scissor lift. The victim stood up on the metal roof near the energized electrical utility line, which was approximately 5 feet above the peak of the roof, contacted it and was electrocuted.

Inspection Number: 933976

An employee was performing roofing activities from an aluminum extension ladder, when he made accidental contact with an overhead power line. The employee succumbed to his injuries after receiving an electric shock and then falling approximately 18 feet from the ladder.

Inspection Number: 952290

Ramp light posts on an exit ramp from the interstate were not working. Two employees were troubleshooting in a 28" x 35" junction box that operates at 277 volts. The disconnect to the junction box is located approximately one minute away, behind a car dealership. One employee was at the junction box and the other at the disconnect. They were not within eye sight of one another. Communication was by company cell phones. Troubleshooting to locate the default cable had to be done live. The victim and second employee located the blown phase. They were ready to make the repair which required lockout/tagout procedures. One employee called the employee to lockout the disconnect. He walked to the company truck and then noticed the victim on the ground, unresponsive. It is believed miscommunications led the victim to believe the power had been cut and locked out.

Inspection Number: 969594

The victim was working on a power pole, when another employee further up the line turned a breaker box to the on position at a substation. This caused the line the victim was working on to be energized (13.2 kilo-volts) and electrocuted.

CATEGORY: STRUCK BY FALLING OBJECT/PROJECTILE

Inspection Number: 963300

The victim was installing drywall, while in a man lift, near an adjacent water line that was being leak tested with compressed air pressure. The carbon black steel pipe failed which caused the end of the pipe to fly off and strike the victim in the face.

Inspection Number: 317966703

The victim was operating an all-terrain forklift with jib attachment to lift wall sections into place on the 4th floor. After setting the wall section in place, he then retracted the carriage with jib. The carriage and jib attachment fell off the front of the all-terrain forklift and struck the victim causing fatal injuries.

Inspection Number: 929814

Summary of Fatal Events (Continued)

CATEGORY: OTHER FATALITY CAUSES

Inspection Number: 965648

An employee was completing the set-up of a machine drill head and stem while the drill was still under power. The employee's clothing caught on the drill stem teeth, causing the employee to be wrapped and entangled around the exposed drill stem. The employee sustained fatal bodily injuries and amputations.

Inspection Number: 933567

The victim was part of a crew assigned to re-line an aggregate/sand hopper. The process required torch cutting and welding. It is believed the cutting may have ignited the flame-retardant insulation between the hopper and building structure. The fire traveled up the 65-foot tall structure trapping the deceased inside the hopper. Fire-Fighters were able to extricate him, but he had sustained fatal burns to his head and severe burns to his hand and wrist in addition to smoke inhalation.

Inspection Number: 935004

Two employees were working from a scissor lift removing bricks from an exterior wall. The wall collapsed knocking the scissor lift over. The employees fell to the ground, fatally injuring one of them.



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