



CONSTRUCTION
INDUSTRY RESEARCH
AND POLICY CENTER

Construction Fatality Digest



APRIL—JUNE 2013

QUARTERLY REPORT

Topics of Interest:

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

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Roof Falls Lead All Fatal Events

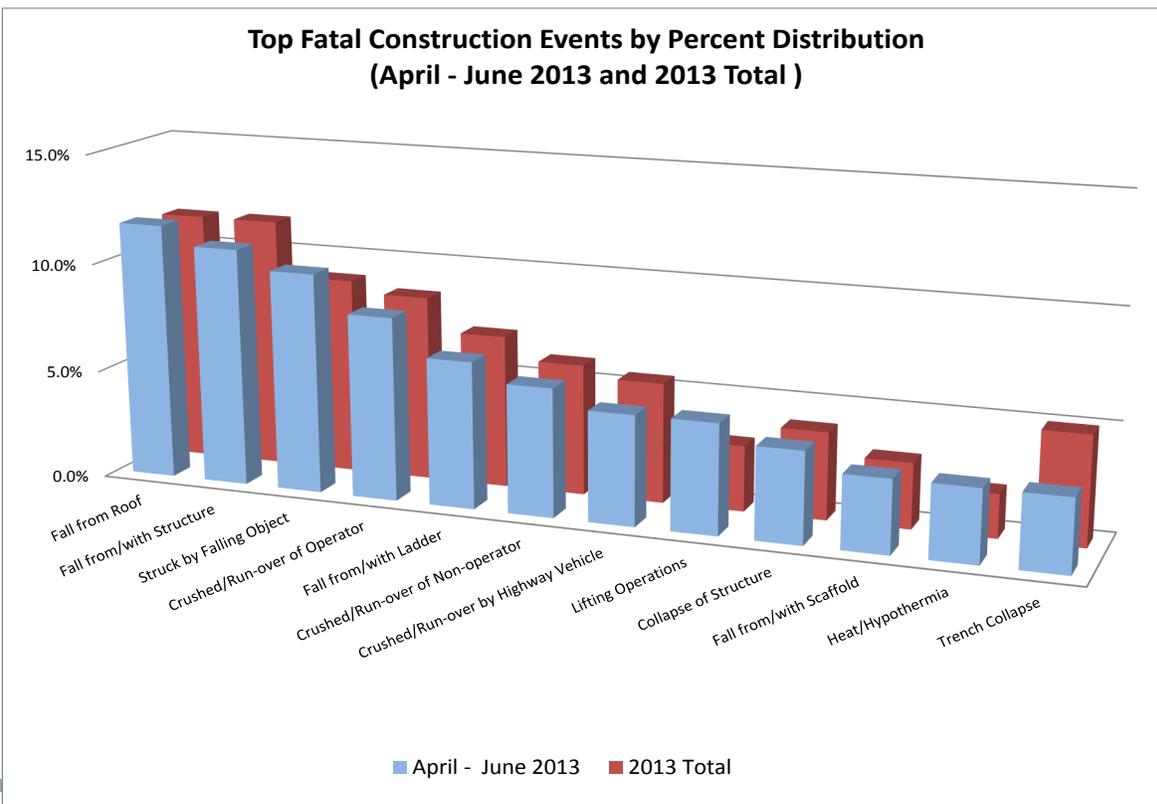
“Fall from Roof” led all fatal events in the fatal construction events reported to CIRPC for the second quarter of 2013. There were 119 fatal events reported for the second quarter of 2013 (April to May) and “Fall from Roof” accounted for 11.8% (14 events) of the total. Rounding out the leading fatality causes for the quarter are “Fall from/with Structure” at 10.9% (13 events) followed by “Struck by Falling Object” with 10.1% (12 events), “Crushed/Run-over of Operator” with 8.4% (10 events), and “Fall from/with Ladder” with 6.7% (8 events).

All types of falls (ladder, roof, vehicle, scaffold, bucket, structure, platform, and opening) accounted for 36.1% (43 events) in the second quarter. For 2013’s first and second quarter, “Fall from Roof” were 11.5% (23 events) and all types of falls were 40.0% (80 events) of the total.

When comparing the totals for 2013 with the current quarter, there is very little variation in rankings. “Fall from Roof” and “Fall from/with Structure” tied with 11.5% or 23 events for the year. “Struck by Falling Object” increased 100% from the previous quarter 6 to 12 events. “Trench Collapse” saw a decrease of 33% dropping from 6 events to 4 events.

There has been an alarming number of heart attacks (45 events) for the 2013 year, far exceeding the number from 2012

**Top Fatal Construction Events by Percent Distribution
(April - June 2013 and 2013 Total)**



“The data is now ‘Real Time’ data...”



The “New” Construction Fatality Digest

This issue of the Construction Fatality Digest (CFD) is similar to earlier issues in format, but differs significantly in the source of the underlying data. In past editions comprehensive data on each event was available from the case files submitted by area offices, but the information did not cover the universe. We did believe, however, that the reports were representative.

In this edition we have shifted to a new data source: the electronic records created at the time of a fatality inspection. There are two advantages: timeliness and comprehensiveness. This and future issues of CFD will cover the universe of fatal events in construction occurring in the reference quarter. Since there is an increase in the number of reported events we will no longer provide a summary of each event, but will provide a representative sample of the narratives.

Hopefully, our readers will continue to find this information of value.

-The Editor

Fatal Events by NAICS Code

The NAICS code shows “Highway, Street, and Bridge Construction” contractors as the top fatal event with 12.6% (15 events) of the total 119 events. Other top codes are “Plumbing, Heating, and Air-Conditioning Contractors” with 10.1% (12 events), “Roofing Contractors” with 9.2% (11 events), and “Site Preparation Contractors” with 8.4% (10 events).

Fatal Events by NAICS Code

Code	Description	# of Cases	Percent
237310	Highway, Street, and Bridge Construction	15	12.6%
238220	Plumbing, Heating, and Air-Conditioning Contractors	12	10.1%
238160	Roofing Contractors	11	9.2%
238910	Site Preparation Contractors	10	8.4%
238990	All Other Specialty Trade Contractors	7	5.9%
236220	Commercial and Institutional Building Construction	6	5.0%
238130	Framing Contractors	6	5.0%
238320	Painting and Wall Covering Contractors	6	5.0%
236115	New Single-Family Housing Construction	5	4.2%
237110	Water and Sewer Line and Related Structures Construction	5	4.2%
237990	Other Heavy and Civil Engineering Construction	5	4.2%
238210	Electrical Contractors	5	4.2%
236118	Residential Remodelers	4	3.4%
238120	Structural Steel and Precast Concrete Contractors	4	3.4%
237120	Oil and Gas Pipeline and Related Structures Construction	3	2.5%
237130	Power and Communication Line and Related Structures Construction	3	2.5%
238140	Masonry Contractors	3	2.5%
237210	Land Subdivision	2	1.7%
238310	Drywall and Insulation Contractors	2	1.7%
236116	New Multifamily Housing Construction	1	0.8%
236117	New Housing For-Sale Builders	1	0.8%
238110	Poured Concrete Foundation and Structure Contractors	1	0.8%
238150	Glass and Glazing Contractors	1	0.8%
238330	Flooring Contractors	1	0.8%
		119	100.0%

Top Construction Standard Violations

Of the 200 cases reported to CIRPC (in 2013) only 28* had issued citations. Included in 28 cases were 67 violations of OSHA standards. Of the 28 cases, 9 reported no violations. With the 9 cases without violations removed, the average number of violations per case with citations issued was 3.53.

The “Hazard Communication” standard is the top violated standard for the year to date with 7 occurrences. Followed by “Material Handling Equipment” with 5 and “Guarding Floor & Walling Openings”, “Head Protection”, and “Fall Protection” each with 4.

When comparing the running total of 2013 violations with OSHA’s Top 10 standards violated in FY2012 (per www.osha.gov), there are similarities and differences. Four of the most frequently violated OSHA standards can be found on the quarterly report list (“Fall Protection”, “Hazard Communication”, “Scaffolding”, and “Powered Industrial Trucks”).

Top Standard Violations Reported During CY 2013

Rank	Std #	Description	# of Occurrences
1	1910.1200	Hazard Communication	7
2	1926.602	Material Handling Equipment	5
T3	1910.23	Guarding Floor & Wall Openings	4
T3	1926.100	Head Protection	4
T3	1926.501	Fall Protection	4
T6	1910.219	Mechanical Power-transmission Apparatus	3
T6	1926.451	Scaffolding	3
T8	1910.1052	Toxic Substances - Methylene Chloride	2
T8	1910.178	Powered Industrial Trucks	2
T8	1910.151	Medical Services and First Aid	2
T8	1926.1412	Crane/Derrick Inspection	2
T8	1926.20	General Safety & Health Provisions	2
T8	1926.503	Fall Protection Training	2
T8	1926.302	Power-operated Hand Tools	2

Each of the remaining violated standards had only one occurrence

* - Inspectors have up to six months to issue citations on the finding of the fatal investigations.

Regional Breakdown

A total of 119 events were reported from the regions in the second quarter of 2013. Of these 119 events, a little more than 23% came from region 6 (28 events), 27 came from region 4, and 15 from region 3.

Of the 119 fatal events 76.5% (91 events) were from Federal OSHA states, while 23.5% (28 events) were from State Plan States.

The breakdown by state has Texas with greatest number of events with 16 (13.4%), followed by Florida with 13 (10.9%), and California with 10 (8.4%).

Fatal Events by Region

April to June 2013		
Region	# of Cases	Percent
1	3	2.5%
2	8	6.7%
3	15	12.6%
4	27	22.7%
5	14	11.8%
6	28	23.5%
7	5	4.2%
8	5	4.2%
9	13	10.9%
10	1	0.8%
Total	119	100.0%

Summary of Fatal Events

Below is a selection of the fatal event summaries from the 119 cases in the quarter

CATEGORY: ROOF FALLS

OSHA Inspection Number: 317114759

Two employees were performing roof waterproofing work. Employee #1 was applying roof sealer with a roller on the roof of the building. Employee #1 was walking backwards while approaching the edge and fell to the ground from a height of 19 feet. The deceased employee was not using any personal fall protection system.

OSHA Inspection Number: 824068

Employee was working on a steep slope roof (8:12 pitch) replacing roofing shingles and weatherproofing. Employee was not wearing a personal fall arrest system (PFAS) and there was not any other conventional fall protection. Employee fell from the roof to the sidewalk below. Employee fell approximately 16.5 feet.

OSHA Inspection Number: 814247

An employee was walking on a metal roof preparing to take some measurements, when he walked into an area where a section of the metal roof decking had been cut and was supported by some horizontal purlins. The employee stepped on the section of the roof that had been cut and the metal roof flipped up causing the employee to fall through the opening to the concrete floor below.

OSHA Inspection Number: 316143635

An employee was gathering information, taking measurements, and reviewing existing conditions on a roof of the future installation of a dust collection system at a foundry. While on the roof the employee fell 30 feet through a skylight that had a thin plastic dome cover approximately 22 inches wide by 45 inches long. The employee landed on the factory floor and was fatally injured. The employee was found by the manufacturing facilities employees. The roof surface was dry and relatively clean with small amounts of foundry dust and sand present.

CATEGORY: FALL FROM/WITH STRUCTURE

OSHA Inspection Number: 818596

An employee fell from the 7th floor while attempting to straighten rebar along an opening in a concrete wall. The employees' safety lanyard ripped or tore which resulted in the employee falling to the ground level.

OSHA Inspection Number: 823637

A roofing contractor was removing a metal roof from a lodging facility. The deceased stepped between the rafters and fell 25 feet, hitting the ground on his head, resulting in a broken neck and possible fractured skull. The deceased was not wearing fall protection.

Summary of Fatal Events (Continued)

CATEGORY: FALL FROM/WITH STRUCTURE (Continued)

OSHA Inspection Number: 824607

Employees were walking on and working from the decking of the second floor of a new residential construction project. The employees that were working from the second story floor were building the framework for the 2 X 4 wooden stud walls. The employer did not have a method of fall protection in place at the open sides of the second story floor. A framing employee fell approximately 9 feet 10 inches onto the concrete surface of the garage floor below.

OSHA Inspection Number: 820681

Two employees were fatally injured while upgrading antennas on a 300 foot cell phone tower. The crew had attached a gin-pole derrick to the tower and was attempting to raise it from an unknown height above ground when something popped/broke causing the gin-pole derrick to fall away from the tower with two employees on it.

CATEGORY: STRUCK BY OBJECT/PROJECTILE

OSHA Inspection Number: 316931096

Employee was installing metal roofing material on a metal frame building. The employee unhooked his fall protection, at the same time a gust of wind blew the metal roofing material into the employee, causing the employee to fall approximately 29 feet to the ground.

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

OSHA Inspection Number: 814539

Company was digging a trench to lay pipe. A crew member walked between the excavator and piping. When the excavator rotated, the employee was caught between the excavator's counterweight and piping. The employee died from his injuries.

OSHA Inspection Number: 824311

The victim was at the bottom of a hill/slope inspecting ventilation duct work. An unmanned parked fork lift rolled down the hill and struck the victim pushing him through a guardrail system causing him to fall 10-15 feet into an air intake pit.

OSHA Inspection Number: 817343

An employee was wearing his harness and lanyard while working from a scissor lift and was pinned between the lift and the pipe when the lift rose unexpectedly. Employer believes the lanyard got caught around operator controls, causing the lift to elevate.

OSHA Inspection Number: 822246

Driver of a flatbed truck was delivering a piece of equipment to a demolition job. While outside of the vehicle, the brakes released allowing the truck to roll backwards. The driver attempted to stop the truck and was run over by it.

Summary of Fatal Events (Continued)

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

OSHA Inspection Number: 317150266

The employee was performing routine mobile operations along the interstate when he stopped on the right shoulder of the northbound lane to retrieve debris from the highway. The employee was standing beside his truck waiting for on-coming traffic to pass when he was struck by a tractor-trailer, fatally injuring him.

OSHA Inspection Number: 820355

Employee #1 had placed a “work area ahead” sign on the shoulder of the road as part of a three sign work zone they were installing. He had then walked to join Employee #2 who was going to place the “one lane road” sign as part of the same work zone. The work zone was for a chipping operation the team was going to perform at that location. The two men were standing near each other when a car traveling south on the road rounding a turn and curved off the road toward the two men. Employee #2 pushed Employee #1 out of the way but Employee #2 was struck by the car and caught between the car and a pick-up truck on the shoulder of the road.

CATEGORY: FALL FROM/WITH LADDER

OSHA Inspection Number: 317130706

Employee was painting the exterior of a building from a 24 foot extension ladder. The employee hopped the ladder while on it, lost his balance and fell approximately 15 feet to the ground. He received fatal injuries (blunt force trauma to the chest).

OSHA Inspection Number: 817446

An employee fell from a ladder when he was applying caulking inside a warehouse. The employee was working by himself and was using an aluminum ladder to apply the caulking. The ladder was a 20 foot extension ladder that was found to have defective footing. The employee had used a mobile scaffold to apply compound and caulking to some areas of the wall prior to using the ladder to finish the end of the wall. No witnesses observed the accident.

CATEGORY: ELECTROCUTIONS

OSHA Inspection Number: 826796

An employee was electrocuted, while repositioning a metal extension ladder, which had come into contact with electrical power lines. The employee/decendent was part of a residential re-roofing crew.

OSHA Inspection Number: 820419

An employee was electrocuted while contacting a pole trailer connected to an Altec Digger Derrick truck when a single-phase 7.6 kV distribution line arced to the auger motor hydraulic and pneumatic hoses while the boom was being maneuvered to be placed into the stowed position. The arc occurred when the boom was about 25 degrees to the left of the pole trailer, in the full upright position, and located about 3-4 feet horizontally and 1-2 feet above the power line.

Summary of Fatal Events (Continued)

CATEGORY: OTHER FATALITY CAUSES

OSHA Inspection Number: 316931443

Welder was installing new piping to a new 40 barrel oil tank. He had completed the weld and was using a grinder to clean up the weld when an explosion occurred, causing the tank to fall on the welder, crushing him.

OSHA Inspection Number: 816632

Two carpenter employees were preparing to rig and lift a load. There was a loud crack and pop noise, the boom fell onto both employees. Both employees died instantly. The 1 inch diameter cable broke along with many parts of the boom assembly.

OSHA Inspection Number: 826382

A concrete finishing worker at ground level was struck in the head by a piece of angle iron which fell from an aerial lift approximately 70-80 feet overhead operated by another employer on the site.

OSHA Inspection Number: 315533430

The employee was cleaning out dirt at the bottom of a 10 foot deep, 10 foot wide trench so that a sewer pipe could be placed in the trench. As he worked, a chunk of soil sloughed off the face of the trench and struck the employee on the head, fatally injuring him. There was no shoring in the trench, which had been improperly benched for its soil classification.

OSHA Inspection Number: 316522598

A 62 year old employee was fatally injured when he was hit by an airplane while working on a private airstrip. The employee was operating a push type blower to remove loose gravel, dust and debris. The asphalt company was paving and chip sealing sections of a crop dusting service airstrip. The employee was working alone in the center of runway approximately 300 feet from the end which leads to the plane loading area and hangers. A pilot had approached the airstrip from the opposite end and landed. He was taxiing toward the hanger when he hit the employee with the plane. The propeller struck the employee. Because of the design (tail dragger) this plane has limited visibility looking forward and no visibility below the engine compartment (nose) while taxiing. Preliminary reports indicate there were no spotters, the EE was not wearing a safety vest and he was possibly hearing impaired.



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We would like to thank OSHA's Dave Schmidt for help in obtaining the data used in this newsletter.

We welcome any suggestions and comments (they can be directed to John Wagner, jpwagner@utk.edu) as we work together to reduce fatal construction events.



PLAN . PROVIDE . TRAIN .

Three simple steps to preventing falls.