



CONSTRUCTION
INDUSTRY RESEARCH
AND POLICY CENTER

Construction Fatality Digest



JULY—SEPTEMBER 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 And Electric Shock Lead Fatal Events

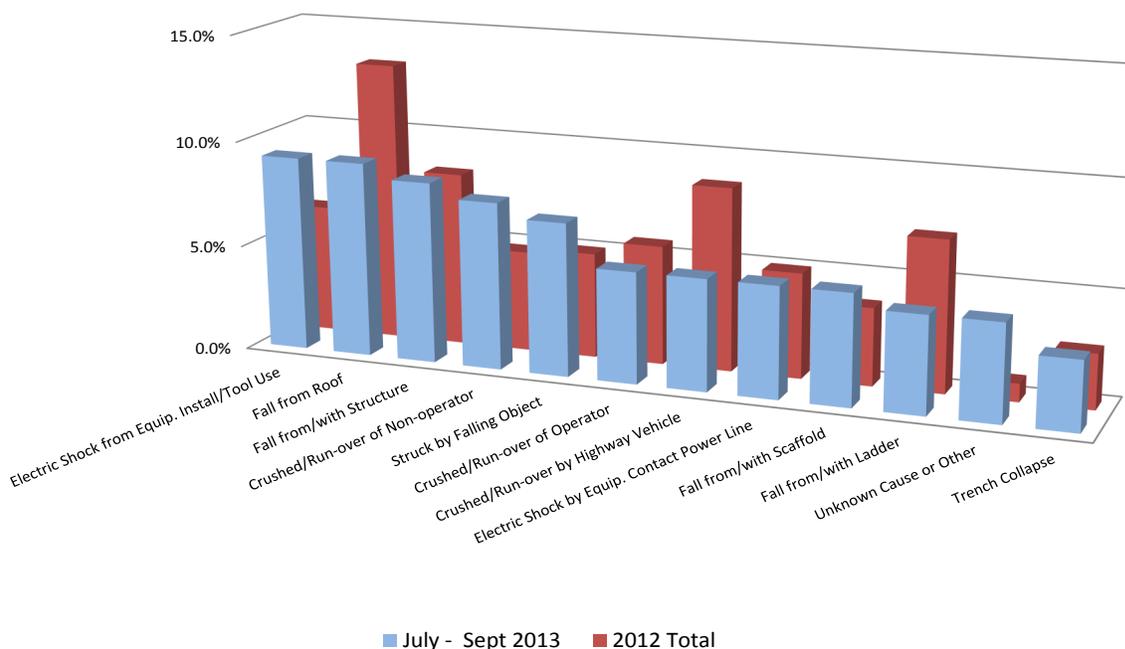
“Fall from Roof” and “Electric Shock from Equipment Installation/Tool Use” led all fatal construction events reported to CIRPC for the third quarter of 2013. A total of 152 fatal events reported for the July - September period. “Fall from Roof” and “Electric Shock from Equipment Installation/Tool Use” each accounted for 9.2% (14 events) of the total. Rounding out the leading fatality causes for the quarter are “Fall from/with Structure” at 8.6% (13 events) followed by “Crushed/Run-over of Non-operator” with 7.9% (12 events), and “Struck by Falling Object” with 7.2% (11 events).

All types of falls (ladder, roof, vehicle, scaffold, bucket, structure, platform, and opening) accounted for 32.9% (50 events). For 2012, “Fall from Roof” were 13.2% (61 events) and all types of falls were 38.5% (178 events) of the total.

When comparing the ranking totals for 2012 with those for the current quarter, there is little variation. “Fall from Roof” decreased from 13.2% of the events to 9.2%, where as “Electric Shock from Equipment Installation/Tool Use” increased from 6.1% to 9.2%.

An alarming number of heart attacks (68) have been reported for the year 2013, far exceeding the events for the year 2012 (30). It should also be noted, that heart attacks have been removed from the 152 fatal events.

**Top Fatal Construction Events by Percent Distribution
(July - September 2013 and 2012 Total)**



Regional Breakdown

“Of the 152 fatal events 65.8% (100 events) were from Federal OSHA states, while 34.2% (52 events) were from State Plan States.”

A total of 152 events were reported from the regions in the third quarter of 2013. Of these, a little more than 22% came from region 6 (34 events), 29 came from region 4, and 22 from region 9.

Of the 152 fatal events 65.8% (100 events) were from Federal OSHA states, while 34.2% (52 events) were from State Plan States.

The breakdown by state has Texas with the greatest number of events with 26 (17.1%), followed by California with 16 (10.5%), and Florida with 10 (6.6%).

Fatal Events by Region

July to September 2013		
Region	# of Cases	Percent
1	5	3.3%
2	8	5.3%
3	10	6.6%
4	29	19.1%
5	19	12.5%
6	34	22.4%
7	12	7.9%
8	8	5.3%
9	22	14.5%
10	5	3.3%
Total	152	100.0%

Fatal Events by NAICS Code

The NAICS code shows “Highway, Street, and Bridge Construction” contractors as the top fatal event with 12.5% (19 events) of the total 152 events. Other top codes are “Electrical Contractors” with 11.8% (18 events), “Roofing Contractors” with 9.2% (14 events), and “Water and Sewer Line and Related Structures Construction” contractors with 8.6% (13 events.).

Fatal Events by NAICS Code

Code	Description	# of Cases	Percent
237310	Highway, Street, and Bridge Construction	19	12.5%
238210	Electrical Contractors	18	11.8%
238160	Roofing Contractors	14	9.2%
237110	Water and Sewer Line and Related Structures Construction	13	8.6%
238910	Site Preparation Contractors	13	8.6%
238320	Painting and Wall Covering Contractors	13	8.6%
238990	All Other Specialty Trade Contractors	8	5.3%
237130	Power and Communication Line and Related Structures Construction	7	4.6%
238220	Plumbing, Heating, and Air-Conditioning Contractors	5	3.3%
238120	Structural Steel and Precast Concrete Contractors	5	3.3%
238110	Poured Concrete Foundation and Structure Contractors	5	3.3%
237120	Oil and Gas Pipeline and Related Structures Construction	5	3.3%
238130	Framing Contractors	4	2.6%
236220	Commercial and Institutional Building Construction	3	2.0%
238140	Masonry Contractors	3	2.0%
238290	Other Building Equipment Contractors	3	2.0%
237990	Other Heavy and Civil Engineering Construction	3	2.0%
236118	Residential Remodelers	2	1.3%
236115	New Single-Family Housing Construction	2	1.3%
238310	Drywall and Insulation Contractors	2	1.3%
237210	Land Subdivision	1	0.7%
238190	Other Foundation, Structure, and Building Exterior Contractors	1	0.7%
236116	New Multifamily Housing Construction	1	0.7%
236117	New Housing For-Sale Builders	1	0.7%
238350	Finish Carpentry Contractors	1	0.7%
		152	100.0%



Top Construction Standard Violations

In only 58 of the 348 cases examined by CIRPC in 2013 reported citations issued*. In the 58 cases were 209 violations of OSHA standards. 18 additional cases (76 total) had closed without issuing violations. With the 18 cases without violations removed, the average number of violations per case with citations issued was 3.60.

The “Scaffolding” standard is the top violated standard for the year to date with 15 occurrences, followed by “Hoisting Personnel” and “Hazard Communication” with 9, “Material Handling Equipment” with 7, and “Fall Protection” with 6.

When comparing the running total of 2013 violations with OSHA’s Top 10 standards violated in FY2013 (per www.osha.gov), there are similarities and differences. The top four of the most frequently violated OSHA standards are also be found on the quarterly report list (“Fall Protection”, “Hazard Communication”, “Scaffolding”, and “Respiratory Protection”).

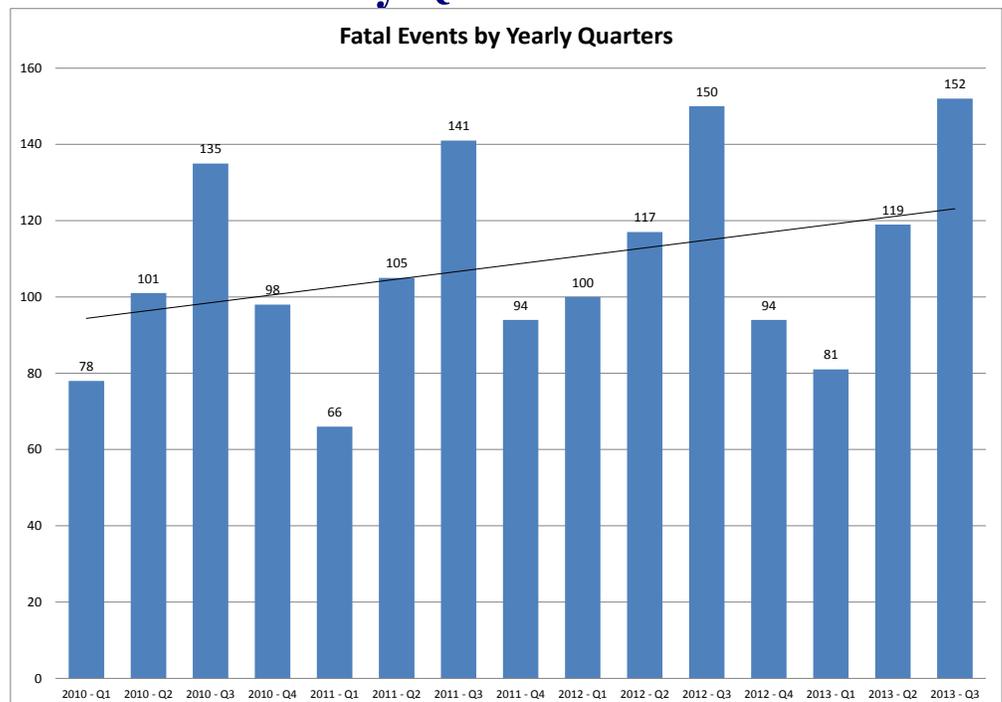
Top Standard Violations Reported During CY 2013

Rank	Std #	Description	# of Occurrences
1	1926.451	Scaffolding	15
T2	1926.1431	Hoisting Personnel	9
T2	1910.1200	Hazard Communication	9
4	1926.602	Material Handling Equipment	7
5	1926.501	Fall Protection	6
6	1910.333	Electrical Safe Work Practices	5
T7	1910.134	Respiratory Protection	4
T7	1910.23	Guarding Floor & Wall Openings	4
T7	1926.100	Head Protection	4
T7	1926.21	Safety Training and Education	4
T7	1926.50	Medical Services and First Aid	4
T7	1926.503	Fall Protection Training	4
T7	1926.651	Excavation	4

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

Trends in Fatalities: Events by Quarters

As the economy has emerged from the recession there has been a sustained increase in construction activity. The increase in employment has been accompanied by an upward trend in construction fatalities. The figure to the right shows this slow increase with the aid of a trend line showing fatal events by quarters from 2010 to the third quarter of 2013. Also clearly shown is the cyclic pattern with fatalities peaking in the third quarter each year.



Summary of Fatal Events

Below is a selection of the fatal event summaries from the 152 cases reported for the quarter.

CATEGORY: ROOF FALLS

OSHA Inspection #316918929

Employee putting down insulation on metal roof was standing on edge of decking, without being tied off, when he stepped off the end of the roof.

OSHA Inspection #836855

An employee installing a new air conditioner was fatally injured when he fell through a roof opening approximately 25 feet to the ground below.

OSHA Inspection #836811

The deceased and two other workers were replacing the roof of a metal building. The deceased was walking across the roof when he stepped into a skylight, causing him to fall approximately 25 feet to the floor below.

OSHA Inspection #316671064

An employee was fatally injured when he fell approximately 25 feet from a skylight to the ground level. At the time of the accident the employee was in picking up tools, material, and connecting the pressure washer water hose.

CATEGORY: ELECTROCUTIONS

OSHA Inspection #829477

Employee was fatally injured when a crane's hook was lowered to within two feet of an overhead power line (7,260 Volts). As the employee touched the tracks of the crane to talk to the crane operator, an electrical arc between the power line and the crane occurred, electrocuting the employee.

OSHA Inspection #316158559

An employee was setting up scaffolding on a single family residence. While installing guardrails, he contacted a 7,200 volt power line, was electrocuted and fell 22 ft. from the scaffold platform to the ground.

OSHA Inspection #853268

An electrician working from an aerial lift was electrocuted while changing light bulbs for a tennis court when the bucket of the aerial lift contacted a 7,200 volt overhead power line.

OSHA Inspection #317143774

A journeyman electrician working on an elevated work platform cut into a live wire rated at 480 volts inside of an electrical room. At the time of the incident, he was using a wire cutter attempting to strip the outer layer of wires to make a connection when he was electrocuted.

OSHA Inspection #828005

A 43 year old electrical repair contractor was in the process of repairing an electrical breaker box in the storage room, when he made contact with a live electrical wire resulting in electrocution.

Summary of Fatal Events (Continued)

CATEGORY: FALL FROM/WITH STRUCTURE

OSHA Inspection #854802

Employees were in the process of tearing off an existing roof in order to put down new sheathing and shingling when the edge of the flat roof broke away and sent the employee falling 16 feet to the ground below.

OSHA Inspection #317278422

An employee was fatally injured while positioning a rebar cage inside a 50-foot hole in preparation to fill the hole with concrete. While positioning the rebar cage, the cage shifted, resulting in the employee falling approximately 18 feet into the hole.

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

OSHA Inspection # 317025112

Victim, a laborer, was working on a replacement street curb and sidewalk project. During clean-up activities on the job site the victim was struck by and ran over by a construction material trailer being pulled by a pick-up truck in the construction work zone.

OSHA Inspection #316140888

An employee was fatally injured when a skid steer loader backed over him. The employee was verifying grade elevations for the widening of an existing roadway and was working behind the skid steer loader.

OSHA Inspection #836278

The victim was painting a three story structure at the overhang near the eave and was pinned inside the aerial lift against the eave when he repositioned the aerial lift.

OSHA Inspection #838107

A skid-steer loader operator working at a demolition site was fatally injured when the loader fell into an open pit. The operator separated from the loader and was caught in between the roll over protective structure and the ground, fatally injuring the operator.

OSHA Inspection #851507

A worker was run over by a dump truck while attempting to make a repair to its braking system.

OSHA Inspection # 317008431

An employee was flagging in a southbound lane. He was standing just off the shoulder, in the grass area. A pickup truck pulling a trailer ran into a stopped car. The stopped car veered to the left, and the truck veered to the right, striking the flagman at his post.

Summary of Fatal Events (Continued)

CATEGORY: STRUCK BY OBJECT/PROJECTILE

OSHA Inspection # 316917228

An employee was fatally struck by a falling tree while in the cab of an excavator. The employee had been clearing trees in preparation for turkey barns to be built on the site.

OSHA Inspection #316670645

A construction worker was building a hay barn at a residential construction site. While he was at ground level retrieving a tool, a 60-foot metal truss beam positioned approximately 25 feet high inadvertently fell striking his head causing blunt traumatic injuries.

OSHA Inspection #853236

Victim was cutting a 6 inch water pipe with a saw. The saw kicked back and cut victim in the neck. The cut severed arteries in his neck.

OSHA Inspection #855079

The deceased was trimming a tree using a step ladder when a tree limb fell and knocked him off the ladder causing fatal injuries.

CATEGORY: OTHER FALL EVENTS

OSHA Inspection #317199883

Employee was constructing a metal liquid fertilizer tank. Employee was unhooking a steel sheet clamping device when the ladder he was using was caught by rigging hardware causing him and the ladder to fall inside the tank approximately 32 to 40 feet.

OSHA Inspection #849133

A Hispanic employee was climbing a ladder on the interior of a water tower with a water pressure hose and other equipment and slipped and fell. The employee fell approximately 50 feet.

OSHA Inspection #854435

Employee fatally fell about 15-18 feet off a ladder to the asphalt driveway below while painting a residential house.

OSHA Inspection #317322576

An employee fell from the third level of a scaffold, approximately 21 feet high, set up for the texture coating application to the side of the building during the construction of a new commercial building.

OSHA Inspection #851328

Two employees were constructing/repairing a railroad trestle from an aerial lift. The aerial lift's personnel platform/basket became wedged against a bolt from a cement cap. When the personnel basket was freed, the boom dipped approximately 3 feet and then rose upward. One employee attached to the personnel basket fell with the aerial lift and died; a second employee was thrown from the personnel basket and was injured.

Summary of Fatal Events (Continued)

CATEGORY: OTHER FATALITY CAUSES

OSHA Inspection #853812

A 25 year old male apparently drowned while he was working in a 30 inch diameter sewer. The victim was relining the inside of the sewer when a heavy rain caused a flash flood. The victim wore a harness when performing the maintenance work but removed it to access a "confined space" when the water in the sewer swept him away.

OSHA Inspection #317199495

A worker was inside of trench repairing a 4 inch sewer line that was initially installed backwards. He was attempting to make corrections and re- install the line. The trench became unstable resulting in soil caving in and burying the worker.

OSHA Inspection #828130

The employee utilized a loader with a fork attachment to unload 36-inch diameter sewage steel pipes from a trailer truck bed. The loader operator lifted two pipes simultaneously with the loader, and when the pipes were removed from the truck bed, the loader tipped forward momentarily causing the pipes to roll off the forks. An employee was underneath the forks at the time of the accident and was crushed by the pipes.

OSHA Inspection #837487

Two employees were fatally injured when the helicopter cable they were suspended from snapped. The two were working on power lines when their cable was severed and they fell approximately 200 feet.

OSHA Inspection #838007

An employee was tying string around sand bags when he complained he did not feel well. He sat in the shade where a truck driver later found him collapsed. Employee was a temporary worker and passed away from heat stress.

OSHA Inspection #847171

A residential house was being demolished when the chimney fell. Employee was struck by the falling debris and taken to the hospital where he later passed away.

OSHA Inspection #848907

An employee conducting sandblasting operations was found unconscious. The employees were working inside a building that was being renovated. Co-workers reported that during the initial stages of the sandblasting operation, smoke filled the area where the air compressor was operating. Co-workers travelled back into the building and discovered their co-worker unconscious. Attempts to revive the employee were unsuccessful.

OSHA Inspection #853321

The victim was welding inside of an approximately 14 feet deep, three foot diameter tank connected to a sewage treatment facility. A fire/ explosion occurred which resulted in the employee inside the tank receiving fatal second and third degree burns.



CIRPC

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.

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