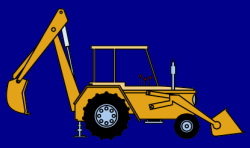
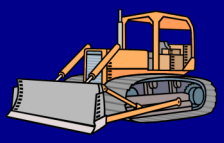
CIRPC
CONSTRUCTION INDUSTRY RESEARCH AND POLICY CENTER
VOL. 5 NO. 2

Construction Fatality Digest





APRIL—JUNE 2016

QUARTERLY REPORT

Topics of Interest:

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

INSIDE THIS ISSUE:

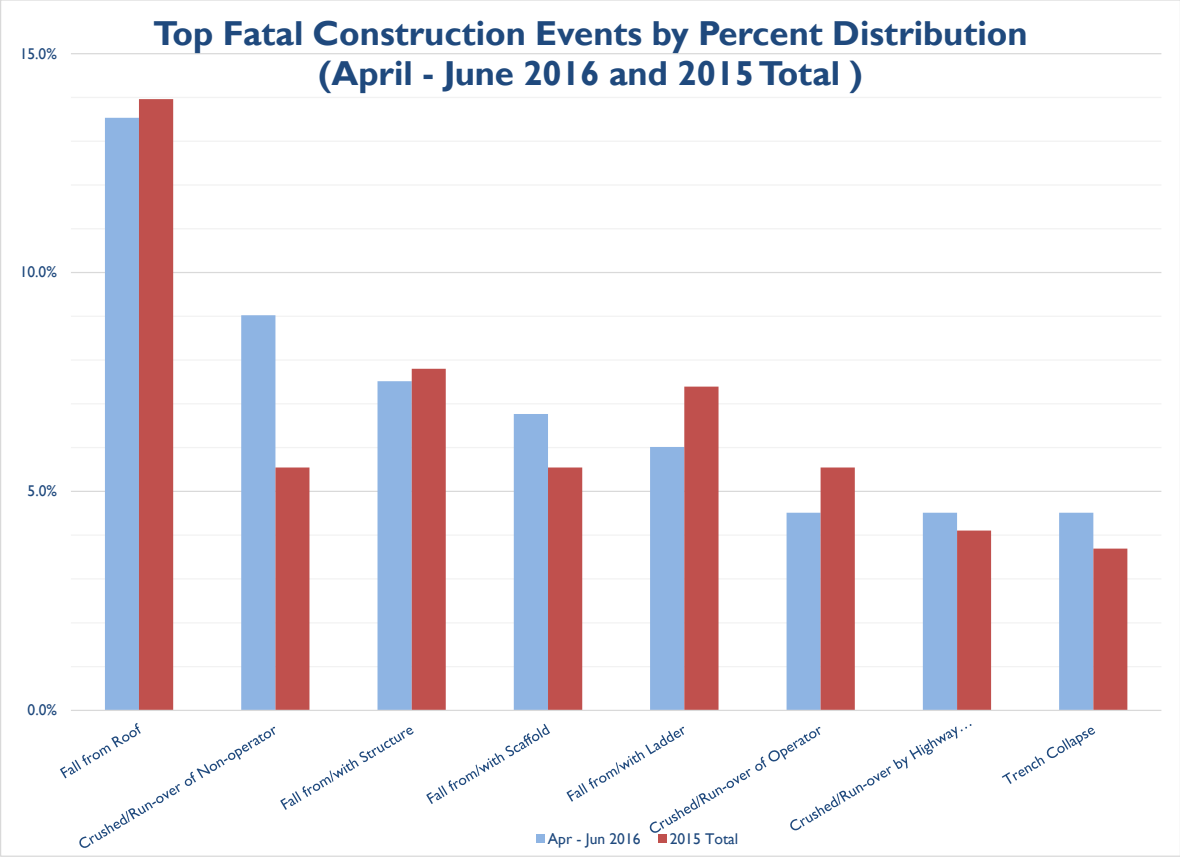
Roof Falls Led All Fatal Construction Events

"Fall from Roof" led all categories with 18 events (13.5%) of the 133 events. This is up from the previous quarter (9.8%). The "Fall from Roof", for 2015, totaled 68 events (14.0%).

All types of falls (roof, ladder, structure, opening, etc.) accounted for 42.1% (56 events) in the first quarter of 2016. This is similar to 2015's total of 203 events (41.7%).

"Crushed/Run-over of Non-operator" was the next most common cause with 12 events (9.0%). "Fall from/with Structure" accounted for 10 events (7.5%), followed by "Fall from/with Scaffold" with 9 events (6.8%), and rounding out the leading causes for the quarter was "Fall from/with Ladder" with 8 events (6.0%).

One area reflected a significant difference in reported percentages from 2015: "Crushed/Run-over of Non-operator" increased from 5.5% to 9.0%. Other areas were fairly consistent with 2015 percentages.



Note: Only the top 8 fatal events are reported in the figure above.

Regional Breakdown

"Of these fatal events 72% (96 events) were reported from Federal OSHA states, while 28% (37 events) were in State Plan States."

A total of 133 events were reported from the regions in the second quarter of 2016. Of these, 25.6% came from region 4 (34 events), 33 came from region 6, and 18 from region 5.

Of these fatal events 72% (96 events) were reported from Federal OSHA states, while 28% (37 events) were in State Plan States.

The breakdown by state shows Texas with the greatest number of reports, 26 (19.5%), followed by Florida with 11 (8.3%), and Alabama with 7 (5.3%).

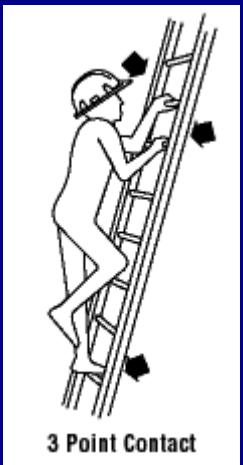
Fatal Events Reported by Region

April to June 2016

Region	# of Cases	Percent
1	8	6.0%
2	9	6.8%
3	13	9.8%
4	34	25.6%
5	18	13.5%
6	33	24.8%
7	3	2.3%
8	6	4.5%
9	5	3.8%
10	4	3.0%
Total	133	100.0%

Fatal Events by NAICS Code

A breakdown of reported fatal events by NAICS code shows "Highway, Street, and Bridge Construction" contractors, at the top with 9.8% (13 events) of the total events. Other top codes are "Roofing Contractors" with 9.0% (12 events), followed by "All Other Specialty trades" with 8.3% (11 events), and "Commercial and Institutional Building Construction" with 7.5% (10 events).



Fatal Events by NAICS Code

Code	Description	# of Cases	Percent
237310	Highway, Street, and Bridge Construction	13	9.8%
238160	Roofing Contractors	12	9.0%
238990	All Other Specialty Trade Contractors	11	8.3%
236220	Commercial and Institutional Building Construction	10	7.5%
238210	Electrical Contractors	9	6.8%
238910	Site Preparation Contractors	8	6.0%
238120	Structural Steel and Precast Concrete Contractors	7	5.3%
238130	Framing Contractors	7	5.3%
237110	Water and Sewer Line and Related Structures Construction	7	5.3%
238220	Plumbing, Heating, and Air-Conditioning Contractors	5	3.8%
237130	Power and Communication Line and Related Structures Construction	5	3.8%
238310	Drywall and Insulation Contractors	5	3.8%
236210	Industrial Building Construction	4	3.0%
238170	Siding Contractors	4	3.0%
238140	Masonry Contractors	4	3.0%
238290	Other Building Equipment Contractors	3	2.3%
238320	Painting and Wall Covering Contractors	3	2.3%
236115	New Single-Family Housing Construction	3	2.3%
236118	Residential Remodelers	3	2.3%
238110	Poured Concrete Foundation and Structure Contractors	3	2.3%
237120	Oil and Gas Pipeline and Related Structures Construction	2	1.5%
238350	Finish Carpentry Contractors	2	1.5%
238190	Other Foundation, Structure, and Building Exterior Contractors	1	0.8%
237990	Other Heavy and Civil Engineering	1	0.8%
238330	Flooring Contractors	1	0.8%
		133	100.0%

Top Construction Standard Violations During 2016

Of the 238 cases for the calendar year 2016 examined by CIRPC, 41 reported citations issued*. In the 41cases there were 122 violations of OSHA standards. The average number of violations per case with citations issued was 2.98. For the three previous calendar years, 2013, 2014, and 2015 the average number of violations per case was 3.38, 3.86, and 3.24 respectively.

The "General Safety & Health Provisions" and "Safety Training and Education" standards are the top violations for the year with 7 occurrences each.

When comparing the running total of 2016 calendar year violations with OSHA's Top 10 standards violated in FY2015 (per www.osha.gov), there are similarities. "Fall Protection", "Scaffolding", "Lockout/Tagout", and "Ladders" appear on both CIRPC's and OSHA's list.

Top Standard Violations Reported

Rank	Std #	Description	# of Occurrences
T1	1926.20	General Safety & Health Provisions	7
T1	1926.21	Safety Training and Education	7
T3	1926.451	Scaffolding	6
T3	1926.501	Fall Protection	6
T3	1926.652	Excavation, General Requirements for Protection Systems	6
T6	1926.1053	Ladders	5
T6	1926.651	Excavation	5
T6	5a1	General Duty Clause	5
T9	1904.39	Reporting Fatalities & Multiple Hospitalization Incidents	4
T9	1926.416	Electrical, General Requirements	4
T9	1926.502	Fall Protection Systems Criteria and Practices	4
T12	1910.147	The Control of Hazardous Energy (Lockout/Tagout)	3
T12	1926.100	Head Protection	3
T12	1926.503	Fall Protection Training	3
T12	1926.960	Electric Power Transmission and Distribution - Working Near	3

* - Inspectors have up to six months to issue citations on a fatality. As a result citations may not yet have been issued for some of these cases.

Workers' Compensation Surveillance

CIRPC is pleased to announce the recipient of a grant from the National Institute for Occupational Safety and Health (NIOSH) in the area of Workers' Compensation Surveillance starting August 1, 2016.

This is a three year collaborative agreement with funding of approximately $200,000 per year. A brief description of the agreement's purpose is below:

The purpose of this cooperative agreement is to compile, analyze, and disseminate workers' compensation (WC) data to promote the prevention of occupational injuries, illnesses, fatalities, and exposures to hazards within the states and throughout the nation. The WC Surveillance Cooperative Agreements are intended to provide state health and state WC agencies and other eligible organizations and businesses the resources to initiate or expand state-based WC surveillance and intervention activities.

NIOSH National Institute for Occupational Safety and Health

THE UNIVERSITY OF TENNESSEE KNOXVILLE
CONSTRUCTION INDUSTRY RESEARCH & POLICY CENTER

Summary of Fatal Events

Below is a random selection of the fatal event summaries from the 133 cases reported for the quarter. These narratives are taken directly from the reports filed by the CSHO's with only minor editing.

CATEGORY: ROOF FALLS

Inspection Number: 1093590
At the time of the accident the victim and another employee were on the roof laying out roofing panels on top of insulation in preparation for final installation of the panels. It was stated the victim was walking when his foot caught one panel causing it to move aside creating a hole which he then fell through. The victim fell approximately 30 feet landing on the concrete slab below.

Inspection Number: 1083042
While the roofing crew leader had left to get some materials, one of the employees fell from the roof approximately 16 feet to the ground below. Employees working on the roof were not using fall protection.

Inspection Number: 1106655
Employees were working to re-roof a flat roof of a parking garage, when they observed the safety monitor walking backwards. He then stepped off the edge of the roof and fell.

Inspection Number: 1089713
An employee performing roofing activities fell approximately 27 feet through a deteriorated section of the roof to the interior floor of the industrial plant.

Inspection Number: 1089101
The victim was moving roofing material when he backed into a 10 inch tall parapet wall, tripped, and fell approximately 18 feet to the ground.

CATEGORY: OTHER FALL EVENTS

Inspection Number: 1095410
An employee was working from a ladder installing a metal soffit when he lost his balance and fell approximately 8 feet to the ground.

Inspection Number: 1110306
The victim was a drywall taper. He was spreading mud inside a residential construction working on an 18 foot ladder. He fell from the ladder and struck his head on the steel mud box on the floor.

Inspection Number: 1087867
A worker fell from a ladder jack scaffold. The victim was believed to be working with the soffit and gutter system which was approximately 12 feet above the ground. There were no witnesses to the event and it is unclear what caused the victim to fall off the ladder jack scaffold.

Inspection Number: 1090581
The victim, a laborer, was working from a wooden box placed on the forks of a rough terrain forklift. He was performing truss work at approximately18 feet. He was in the box with another employee when the box tilted. The other employee jumped from the box and grabbed the window ledge. He released his grip and dropped to the ground uninjured. The victim fell out of the box to the ground and the wooden box landed on him.

Inspection Number: 1098848
An employee was working from an articulating boom when he climbed out of the basket to tighten bolts at a column connection. The employee lost his footing and fell approximately 18 feet to the ground, the employee was not wearing any fall protection.

Summary of Fatal Events (Continued)

CATEGORY: OTHER FALL EVENTS (Continued)

Inspection Number: 1094683
The victim was roofing a two story residence when he slipped and fell. The victim was carrying shingles across a ladder, which was placed horizontal, two stories high between two roofs/residences, when he slipped and fell approximately 25 feet to the ground below.

Inspection Number: 1078137
An employee was working in the rafters when he stepped onto a drop ceiling. He fell through the drop ceiling approximately 10 feet to the floor and suffered fatal injuries.

Inspection Number: 1078472
The victim was working on top of a 12 foot tall wooden box to be used as a concrete form for river drainage underneath a highway. He was preparing to lay out rebar across the top of the box. There was one other person working on the top with him and a company foreman in a forklift below. The foreman noticed that the victim wasn't on top of the box anymore and asked the other person where he was. The two stopped what they were doing and looked for him. The victim was found on the ground below, unconscious and bleeding from a head wound.

Inspection Number: 1087208
An employee was performing demolition and tear down operations of a wood-framed barn. The employee was removing the floor boards of the second floor loft and fell approximately 13 feet to the exterior of the building to the concrete ground below.

Inspection Number: 1094386
An employee was taken to a medical center after slipping and falling. While attempting to unload a carpet pad from a vehicle, the victim fell backwards causing him to fatally strike his head on the concrete surface.

CATEGORY: HEAT RELATED

Inspection Number: 1105610
At the end of the work day, an employee came into the company's work trailer to cool down, and drink water. Employee passed out while in work trailer. On site safety personnel administered CPR and he was transported to a hospital by ambulance. The employee later passed away from heat stress related symptoms.

Inspection Number: 1097383
An employee was working on the roof (installing roofing). The employee stated he was not feeling well, and he descended the roof to rest. Employee returned to the roof, and worked for about 15 minutes. Employee again said he wasn't feeling well, and again descended the roof to rest. He was later found in the stairwell unconscious (heat stress). He later passed away.

Inspection Number: 1103785
An employee working in a yard digging post-holes for a deck began to feel poorly, and went into his truck to rest. He was found unresponsive in his truck and is believed to have passed away from heat stress.

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

Inspection Number: 1091873
Two employees were acting as spotters for a crane being moved. The spotter that was on the back side of the crane walked in between the crane and another stationary crane. The spotter was attempting to warn the crane operator that he was about to hit the other crane when the spotter was crushed between the crane that was moving and the stationary crane.

Inspection Number: 1096116
The victim was walking behind a loader as it was backing up and turning, when he was run over. Witnesses stated the victim was using a mobile phone at the time of the accident.

Summary of Fatal Events (Continued)

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

Inspection Number: 1094526
An employee was located on the shoulder of the highway next to a closed lane when he was struck by a work truck. The truck was backing up to dump soil and the employee was spotting the truck. The truck struck the employee resulting in a fatality.

Inspection Number: 1104804
The victim was in the back of a dump truck when he was "scooped" out of the back of a dump truck by an excavator.

Inspection Number: 1091150
The victim was working in road construction area flagging traffic when he was struck-by a construction site sweeper that backed over him. The victim was a temporary employee for the company and had only been on the jobsite one week.

Inspection Number: 1088154
The victim was attempting to pull a forklift that was stuck with a tractor. While pulling the forklift, the tractor flipped over backwards, rolling over and onto the victim.

Inspection Number: 1094751
Employees were conducting repairs on the center median wall of an interstate where a work-zone had been set up. The employees were taking a break when a vehicle came through the barricade and hit one of the work trucks and the victim.

CATEGORY: ELECTROCUTIONS

Inspection Number: 1107977
The victim was in the attic of a residential home. He entered the attic through the garage. He was trying to cut a hole into the ceiling. Two employees were inside of the bathroom, talking to the victim. The other employees heard the victim say "ow". They went into the attic and found the victim non-responsive.

Inspection Number: 1090262
Employees were conducting maintenance on an electrical power line which required the replacement of a 30 foot electrical pole. During the process of setting up a digger truck to dig a hole for the new pole, the operator of the digger truck made contact with the electrical power line which energized the truck. The victim was on the ground and adjacent to the truck. He made contact with the truck and was electrocuted.

Inspection Number: 1092927
An employee was electrocuted when the cable from a boom truck made contact with a 13.2 kV power line that was 18-20 feet above the ground. The workers were pulling up 16' x 8' wooden mats (similar to pallets) that had been used as a makeshift road for the boom truck to access a fenced-in area where an old cellular tower was dismantled. They had initially dragged the mats into place using a pick-up truck, but elected to use the boom truck to remove them. The boom was up and near the power line. The victim was holding the hook and he moved it a few feet laterally and made contact with the overhead line.

Inspection Number: 1088527
While unloading asphalt from a dump truck into a paver, the bed of the dump truck contacted a power line. The victim was on the side of the paver and was electrocuted. The employee who was operating the paver was hospitalized.

Inspection Number: 1105652
An electrician was fatally burned while fixing a street light. The street light arced and the surrounding palm trees caught on fire and burned the employee.

Inspection Number: 1102048
Employer and helper were installing a new a/c unit in the attic of a business. The helper came in contact with an energized metal conduit that came from a junction box near the A/C installation and was electrocuted.

Summary of Fatal Events (Continued)

CATEGORY: OTHER FATALITY CAUSES

Inspection Number: 1088530
The victim was re-glazing the surface of a bathtub. He was later found unresponsive by a co-worker. It is believe that he asphyxiated.

Inspection Number: 1080088
A laborer was inside a trench laying underground telecommunication conduit when an adjacent highway perimeter wall fell into the trench and fatally struck him.

Inspection Number: 1081307
An employee died when a job-built temporary platform collapsed in an elevator shaft. The employee was doing sheetrock taping while standing on a temporary platform at the 2nd floor level in the elevator shaft when a similar platform higher up in the shaft at the 4th floor collapsed. The 4th floor platform was loaded with 26 pieces of 5/8 inch sheetrock. The platforms and sheetrock along with the employee fell to the basement.

Inspection Number: 1086524
An employee operating a Caterpillar Reclaimer/Tiller struck a 10 inch gas main which resulted in an explosion and fire. The victim passed away as a result of the burns from the incident.

Inspection Number: 1090191
During turnaround operations, a heat exchanger was being removed from service by a crane. During the lift, an approximate 6 inch x 10 feet long pipe broke free from the exchanger and fell. The pipe fatally struck the victim in the head and shoulder area.

Inspection Number: 1102415
Three employees were installing a 4 inch sewer line in a 12 foot trench. The victim was leveling out the bottom of an unprotected trench, when a collapse occurred. While attempting to dig out the victim, two other employees were asked to exit the trench by the fire department prior to the trench's second collapse which further covered the victim.

Inspection Number: 1088595
Two employees were excavating a trench in order to install an 18 inch drainage pipe. The trench was approximately 13 feet deep consisting of at best class B soil. The victim entered the trench in order to check for proper depth. The trench was benched on one side, however, the opposite side consisted of a vertical wall. The vertical wall collapsed and buried him under 3 to 4 feet of dirt and gravel. The victim died of asphyxiation prior to being removed by fire department personnel.

Inspection Number: 1099154
Employee was working in a trench approximately 4 feet deep installing an 8 inch under-drain pipe when a 60 foot section of the trench wall collapsed covering the employee up to his chest. The employee suffered fatal injuries.

Inspection Number: 1083872
Worker was on a two story apartment complex roof when he was struck by lightning. He then fell off the building dying instantly. The deceased was working on an AC unit.

Inspection Number: 1105864
Worker was found deceased in company vehicle at a residential construction jobsite. Witnesses stated they had seen the victim stung by a wasp earlier and appears he had an anaphylactic reaction.

Notes from CIRPC

CIRPC's Other Research and Studies!

Please check out CIRPC's website for other publications, reports, and studies in the areas of:

- Residential Roofing
- Cranes
- Benefits of OSHA 10 Hour Training
- Roofing and "Working Safely is No Accident" Apps
- Fatal Electrical Events
- Onboarding Construction Workers
- Penalties in Construction Fatalities
- Steel Erection

They can be found at : **http://cirpc.bus.utk.edu/FatalityReports.asp**

We can be contacted at:

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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 reduce fatal construction events.