

TerranearPMC Safety Share

Week of November 20, 2017 – “Caught-Between” Accidents

Within the construction industry, four specific hazards have become the focus of OSHA and safety professionals. These are: 1) Falls, 2) Caught-betweens, 3) Struck-Bys, and 4) Electrocutions. As such, they are frequently referred to as the *fatal four*! This discussion is an emphasis on the second hazard: “Caught-betweens.”

Caught between hazards are those where workers are squeezed, crushed, caught, pinched, or compressed between two objects or parts of two objects. This includes an employee getting buried from a collapsing building or a trench failure (aka cave-in). Other types of caught-between incidents involve being situated between a moving piece of equipment and a stationary object - such as a semi-trailer and a brick wall or a forklift that tips over and the floor. Another example would be a person being placed between a truck frame and a lowering hydraulic bed. Whatever the specific scenario, caught-between hazards can result in unforgiving results.

It is necessary to make a distinction between “caught-between” and “struck-by” hazards. The key factor in making this determination (between a *Caught* event and a *Struck* event) is whether the impact of the object alone caused the injury. When the impact alone creates the injury, the event should be recorded as a “struck-by” incident. When the injury is created as a result of being crushed between objects, the event should be recorded as a “caught-between.”

Events that should be classified as Caught-between incidents include:

- Cave-ins (trenching)
- Being pulled into or caught in machinery and equipment (this includes strangulation as the result of clothing caught in running machinery and equipment)
- Being compressed or crushed between rolling, sliding, or shifting objects such as semi-trailers and a dock wall, or between a truck frame and a hydraulic bed that is lowering

Common injuries associated with caught-between hazards include:

- Traumatic brain injury
- Paralysis
- Amputation of limbs
- Internal organ damage
- Spinal cord injuries
- Fractures
- Muscle and tendon sprains, strains, and tears
- Death

In 2008, the Bureau of Labor Statistics (BLS) reported that the total number of fatal work injuries involving caught-between hazards remained about the same for all of private industry as in 2007. In 2008, the private construction industry alone accounted for 92 of the caught-in or caught-between fatalities, or approximately 23% of the total. According to OSHA’s 10 most cited violations for last year (2016), Fall Protection, Scaffolding, Control of Hazardous Energy, Powered Industrial Trucks, and Machine Guarding, were noted as areas where industry needs to strengthen its programs as all these classifications are areas where “Caught-Between” hazards exist. It is no wonder that these hazards have become a focal point for understanding how caught-between accidents occur and, more importantly, how to mitigate and control them.



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Workers can be injured when they are caught between objects or machinery in a number of ways. Common ways these dangerous accidents occur include:

1. If machinery is not properly guarded or is not locked down when being repaired or not in use, the machinery can accidentally turn on and workers can get their clothes or body parts caught between the machinery.
2. Machinery that is used unsafely can tip, causing workers to be trapped between the heavy equipment and another object, wall, or the ground.
3. If trenches and excavation sites are not properly supported, workers can be buried when they crumble.
4. Walls not braced properly and jacks that are not placed on a firm foundation or secured once the load is raised can cause a building or part of it to collapse, crushing construction workers.
5. Scaffolds that are not constructed or braced properly can fall down, crushing workers in the rubble.
6. If machinery is not repaired and maintained, it can malfunction and trap workers in deadly accidents.
7. When employees are not trained in the safe use of machinery and equipment and how to avoid some of the hazards of construction jobs, they are injured or killed in preventable accidents.

According to the OSHA Institute Training Manual (April 2011), there are many effective ways to keep employees properly protected from caught-between hazards. These include:

1. Use machinery that is properly guarded;
2. Use methods to ensure that machinery is sufficiently supported, secured or otherwise made safe;
3. Be aware of situations where there is a potential to being pinned between equipment, materials, or other objects;
4. Employing protective sloping, benching, shoring or shielding devices for excavations; and
5. Training

When working with machinery, it is mandatory that physical guards are in place. Loose clothing, such as jewelry, should be removed or concealed when working near moving/rotating parts. And of course, maintenance should be performed while equipment is de-energized using a company approved lockout/tagout program.

When working in the field, employees need to be aware - at all times - of the equipment in the area and to maintain a safe distance. Employees should never place themselves between moving materials and an immovable structure, vehicle, or stacked materials. Riggers should ensure that all loads carried by equipment are stable and secured. And persons need to stay out of the swing radius of cranes and other equipment that has the capability to swing about an axis.

When applicable, wear a seatbelt, if required, to avoid being thrown from a vehicle and then potentially being crushed by the vehicle if it tips over. And for excavation sites, never work in an unprotected trench that is 5 feet deep or more, as the soils may collapse.

Lastly, training is a key component of any safety program. This includes making sure personnel that may be susceptible to caught-between hazards receive proper training on equipment they will be working on or within close proximity at the workplace or construction site. Most notably, it is important that workers understand where these hazards exist and know what controls are necessary when in the vicinity of hazards.

If we all did the things we are really capable of doing, we would literally astound ourselves - Thomas Edison

