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Safety Bulletin

Struck-By Incidents and Heavy Equipment

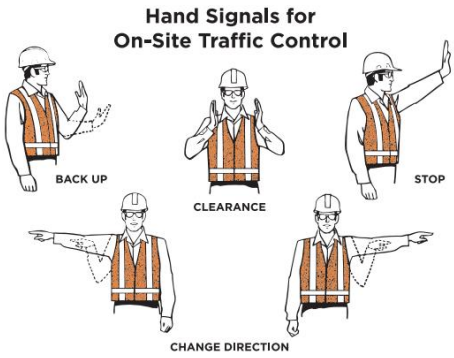
Heavy equipment and machinery on jobsites pose a significant risk to workers, with homebuilding, ICI, heavy civil, and road building industries being particularly vulnerable.

Here are some guidelines to reduce struck-by incidents when working around heavy equipment, reversing vehicles, and moving machinery.

Avoid Operating Vehicles in Reverse

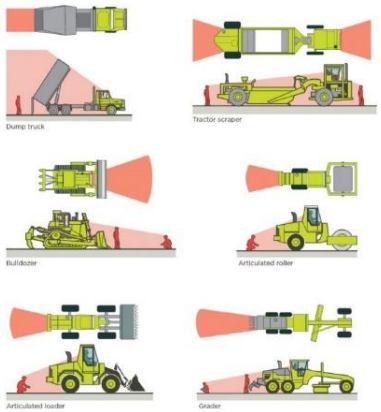
Unrestricted movement of workers on jobsites increases the risk of struck-by incidents, particularly in congested areas with backing equipment. Blind spots, noise, and dust can hinder visibility, making it difficult for operators to work safely. Construction projects should be planned and organized to avoid reverse operation of vehicles, machines, and equipment when there is no practical alternative.

Use A Signaller (Spotter)



If vehicles must operate in reverse, operators must be assisted by a signaller, establish communication procedures, and post signs in conspicuous areas to warn workers of potential injury. Signallers must be competent, not perform other tasks, wear high-visibility clothing, and receive adequate oral instruction and training. A signaller or spotter is a crucial eye for equipment operators, often the most vulnerable to being struck by moving machinery. They should stand visible to operators, stay out of the vehicle's path, and be aware of other machinery.

Avoid Blind Spots



Workers should be aware of blind spots on vehicles and equipment, allowing them to avoid them. Maintaining eye contact with drivers or operators when working near heavy equipment is a good practice, ensuring visibility. Signallers or spotters must focus on their task, as losing focus on heavy equipment could potentially lead to life-threatening situations.

Use Warning Devices or Detection Systems

Construction projects mandate dump trucks to have automatic audible alarms for reverse operation. Other technologies, when used with a signaller, can reduce struck-by incidents from backing up vehicles, preventing injuries and fatalities from reversing vehicles.

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Radar systems monitor rear blind spots behind vehicles, sending electronic pulses to detect objects near the radar beam and warn the operator. However, these systems can detect anything behind the vehicle, even if not a hazard, leading to "false positives" and potential operator ignoring alarms.

Radio frequency detection systems detect personnel wearing safety vests and hard hats with RFID (radio frequency identification detection) tags. When a worker enters the transmitting area, an alarm sounds, alerting the operator. However, the system's limitations include insufficient operator reaction time and its only functioning if workers wear RFID-tagged vests or hard hats.

Rear-view camera and monitor systems use rear-mounted cameras and a cab-mounted monitor to display blind spots behind the vehicle. However, these systems have limitations, such as the camera needing to be clean and the operator relying on the monitor.

Look Out for Overhead Powerlines

Although not a typical struck-by incident, contact with overhead powerlines has been a major cause of fatalities and critical injuries in construction. These types of incidents usually involve heavy equipment such as backhoes, dump trucks, boom trucks, cranes, and excavators.

A signaller or spotter must be employed when equipment near a powerline is near an energized overhead electrical conductor, with the signaller's full view of the operator and the powerline. The constructor must create written procedures to prevent vehicle or load encroaching on the minimum distance, including warning devices and signs, and communicate with them about all the project stakeholders.

Develop Safe Work Procedures

Before starting work, management should plan and implement an effective system to identify and control hazards. A pre-job hazard assessment, or HIERAC is a good way to ensure preplanning and safe work procedures for workers.

Construction projects mandate that employers create and execute a written traffic protection plan for workers exposed to vehicular traffic hazards. Employers should establish a health and safety policy for working on or near heavy equipment, ensuring workers understand and are trained on safe work plans and procedures, including legislation requirements and best practices.