

Construction – Backhoe & Excavator Safety

A recent review of the Bureau of Labor Statistics' (BLS) *Census of Fatal Occupational Injuries* (CFOI) data identified **346 deaths associated with excavators or backhoe loaders** during an eight year evaluation period. A review of this data, and of the NIOSH Fatality Assessment and Control Evaluation (FACE) Program cases, suggest two common causes of injury or death:

- (1) being struck by the moving machine, swinging booms, or other machine components; or
- (2) being struck by quick-disconnect excavator buckets that unexpectedly detach from the excavator stick.

The following are recommendations for preventing worker injuries associated with the operation of backhoes and excavator equipment.

- Locate overhead and underground utility lines before beginning work. Avoid working near overhead power lines. If you must work near them, develop a plan to avoid contact.
- Operate hydraulic excavators or backhoes only on grades specified by the manufacturer.
- Position machinery at a safe distance from excavations, such as trenches.
- Train equipment operators in the proper use of the equipment they are assigned to operate.
- Identify and label all machine controls and make sure that the manufacturers' safety features are working.
- Securely latch attachments, such as quick-disconnect buckets, before work begins.
- Conduct visual and operational checks on all machine systems and controls before use.
- Make visual inspections of quick-disconnect systems, especially after changing attachments.
- Use the rollover protection system (ROPS) and seat belts supplied by the manufacturer.
- Do not exceed load capacities when lifting materials.
- Lower the boom to a safe position with the bucket on the ground and turn off the machine before stepping off for any reason.
- Make all workers on the site aware of the machines' established swing areas and blind spots before the operator works the machine.
- Keep workers outside swing areas by marking them with rope, tape, or other barriers.
- Before each work shift begins, review and confirm communication signals between machine operators and workers on foot.
- Keep workers outside the hydraulic excavator swing areas and clear of attachments when using the machines for hoisting materials.
- Do not allow workers to stand under suspended loads or suspended machine components such as the boom, arm, or bucket.
- Do not permit workers on foot to approach the hydraulic excavator or backhoe loader until they signal the operator to shut down the machine and receive acknowledgment from the operator.
- Use spotters or signal persons around operating equipment when necessary.
- Never permit workers to ride in or work from excavator or backhoe loader buckets.