

Safe ways to enter a grain bin



Implementing safer operational practices

We understand the complexities of working with grain bins, and want to do everything we can to help you remain safe. This awareness document is designed to help you gain a better understanding of what can go wrong when entering a grain bin and what it takes to help prevent a tragedy from happening.

The biggest hazard is suffocation.

Grain bin entry is extremely dangerous and exposes farmers and commercial grain handlers to serious suffocation hazards. Suffocation can occur when workers are engulfed by grain or when bins develop oxygen-deficient atmospheres. To add to the tragedy, when other workers or family members attempt to rescue a person in distress, they too can fall victim.

There are two main factors that can lead to suffocation:

1. **Engulfment** can happen when a worker stands on flowing grain, stands on or below bridged grain or attempts to dislodge crusted grain from within the bin. Much like quicksand, flowing grain can bury a worker within seconds. Its behavior and weight make getting out without assistance almost impossible.

2. **Toxic gases** can quickly overcome a worker entering a bin — such as carbon dioxide — and can cause death or serious injury. Suffocating atmospheres can result from machinery in use in or near bins, spoiling or deteriorating grain or other problems.

We understand there are times when workers must enter a grain bin, as a means of last resort. To help ensure worker safety, Nationwide® recommends that all farmers and commercial grain handlers strictly follow OSHA's grain-handling standard and requirements for entering a bin, and to develop and implement a written bin entry program.

Suggestions on how to help keep yourself and others safe.

Maintain quality grain.

Grain bin safety starts with maintaining grain quality in storage, which means learning and practicing better stored-grain quality management, while closely monitoring grain condition. If you can prevent grain spoilage, you may be able to eliminate the leading cause of bin entry.

Develop a rescue plan.

Who do you call in case of emergency? Who are your emergency team members and what are their roles? Is your local emergency response team familiar with your operation? Those are just some of the questions a bin rescue plan should address.

Develop a written permit system.

A bin entry permit should be required before entering a grain bin. The permit provides a checklist to ensure hazards are identified and proper precautions are taken before and during bin entry. The permit should be signed by another person verifying the permit is properly filled out and the grain bin is safe for entry. For those that fall under OSHA, be sure to follow the standard with appropriate signatures.

De-energize and lock out equipment.

Before entering a bin, all mechanical, electrical, hydraulic and pneumatic equipment, which presents a danger to workers inside grain storage structures, must be de-energized and disconnected; locked out and tagged; blocked off or otherwise prevented from operating by other equally-effective means or methods. Discharge augers must be disconnected from power, locked out and tagged; and loading augers powered by a Power Take-Off (PTO) must be shut off and disconnected to eliminate the possibility of someone turning on the auger while someone else is in the bin.

Monitor the air.

Before entering a grain bin, it's critical to test the air for the presence of combustible gases, vapors and toxic agents, and to ensure a sufficient oxygen level. Ventilation must be provided until the unsafe condition is eliminated; and it must be maintained if there's a chance for the condition to redevelop while a worker is inside. No entry is permitted until a sufficient oxygen level has been reached.

Secure a lifeline.

When a worker enters a grain bin from a level at or above the level of the stored grain, or whenever a worker stands on or in stored grain, the worker must use a harness and safety line that's securely tied to a fixed, overhead-anchor point. A lifeline attached to any location other than an overhead-anchor point is useless in preventing engulfment and may only serve as a means to locating a body. The safety line should be taught to prevent the worker from sinking and the anchor point should be overhead and able to support approximately 1,800 pounds.

Older farm bin roofs aren't designed to support that weight, so consult with a design engineer before adding anchor points. Newer bins should have the proper anchor points, but it's a good idea to check with the manufacturer to ensure anchor points will support the weight.

Utilize an observer.

An observer is required to be stationed outside the bin who will maintain constant communication with the person inside the bin. The method of communication can be visual, voice or signal line.

Train workers.

Before any bin-entry activities can occur, OSHA requires workers to be trained for the specific hazardous work operations they are to perform. Workers need to understand the hazards, equipment shut-down and lock-out procedures, air testing and how to properly tie off when entering above grain that can engulf.

Workers should be reminded to never walk down grain — a practice strictly prohibited under OSHA's grain handling standard. Walking down grain is when a worker walks on top of grain, while equipment is running, in an effort to make it flow.

Help us save lives.

Learn more about grain bin hazards and safe-work practices and procedures at grainbinsafetyweek.com.