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# Steel Bin Safety Standards

INITIATIVE FOR A SAFER WORKING ENVIRONMENT AROUND GRAIN STORAGE

by Carol Jones, Ph.D., P.E.

As grain facilities get larger, reclaim systems move product faster, time becomes more valuable, and the financial risk in today's market remains high, the number of accidents and fatalities due to grain bin mishaps also increases.

Rescue response to these incidents is critical to the outcome for victims. Training and equipment to facilitate a timely and effective rescue are essential and severely lacking in much of the industry today.

Response teams must be trained to handle the very unique conditions of grain bin accidents. But if the equipment for the response is not available or functional, the outcome of the accident is certainly dismal.

Many times, safety provisions within the bin can help prevent accidents, and a rescue would not be necessary. Trained workers can do their jobs safely and move on to the next task without incident.

## Workplace Realities

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While a zero bin entry policy and safety culture is the best plan, the reality is that workers do enter bins for a number of reasons. More times than not, the reclaim system has stopped unloading product due to clumps of grain not entering the sump, a sweep auger has stopped functioning, grain



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is stuck against the bin wall, or a cavity with a bridge over it has formed in the grain mass.

Each of these scenarios is caused by grain going out of condition. The ultimate answer is to keep grain in the best condition possible, to limit the need to enter the bin.

However, that happens only in a perfect world. The reality is that grain is always under attack by a multitude of enemies: moisture, insects, foreign material, condensation, and poor-quality grain going into the bin.

To make safety issues even more challenging – in many parts of the country, the available labor force is untrained and inexperienced in the area of grain handling and storage. It's critical that employers provide training for these workers. This training must include safety and rescue awareness-level information.

Experienced workers also need refresher classes to keep muscle memory and sharp attention skills current. In fact, several recent accidents and fatalities involved workers with 30-plus years of experience. So not all accidents can be attributed to worker experience levels.

Workers must follow company and government regulations for their safety, but many times these regulations are overlooked in favor of expediency, or "we've always done it this way before with no problems." And then one day, the "way we always did it" goes wrong, and a worker doesn't go home to his loved ones that night.

One of the regulations from OSHA states that workers must wear a harness with a lifeline attached when entering a bin. However, these regula-

tions do not specify where the lifeline should be anchored or, specifically, how it should be handled. Many bins do not provide a place to anchor the lifeline.

Along with the lack of an anchor point, many bins have access openings too small to extract a victim, platforms too small to be functional, and some have no step or platform at all.

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## Bin Safety Standards

In response to these safety challenges, the steel grain bin manufacturers have come together to commit to standards that will help facilitate an atmosphere of safety and make rescue operations more effective.

Industry representatives proposed a new steel bin standard last year through the American Society of Agricultural and Biological Engineers. New steel bins that are not small hopper-bottom bins are covered by the standard.

While the first draft of the standard, X624, was not approved by the committee, the constructive comments offered by the committee gave direction for the revised version currently being considered.

The standard states that bins must have an anchor point for a lifeline. It also describes the minimum size access openings must be to facilitate safe entry and the rescue of a victim, if necessary.

The location of roof access openings, in reference to catwalks or access structures, is addressed to make entering the bin for work or for rescue safer.

Other specifications in the standard specify steps for openings 16 inches above the base of the bin and platforms for a safe work surface, if the access is over four feet above the ground.

The revised version of Standard X624 is in the process of official review and comment by the committee now. Any comments will be addressed, and then the committee will consider the changes before the standard is sent forward. It is anticipated that this process will be complete by early 2014.

While the standard is not on the books yet, many major bin manufacturers already are providing these safety features or at least are offering them as options to buyers.

### **Buyer Responsibility**

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these safety features. In the big picture of the price of a new bin, these safety features are inexpensive. Many times, the change is the location of features that already are included in the bin package, not a costly change at all. But buyers need to be aware of what to ask for and how to use these safety features.

Organizations like the Grain Elevator and Processing Society (GEAPS) the land grant universities, and state grain and feed associations will be focusing on training opportunities in the future to help buyers make safety-minded decisions and to use their equipment safely.

The price of the changes to meet the new X624 standard and to train employees and buyers for a safety culture is minimal when compared to the price of an accident and most certainly of a fatality. At the end of the day, everyone should go home to families and friends.

The grain bin manufacturers should be congratulated for their efforts in establishing this new standard and moving forward with the equipment to make the workplace safer and healthier both on the farm and in commercial storage facilities.

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