

National Grain and Feed Association

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NGFA Safety Tips: Bin Site Entanglement Hazards

...Committed to promoting safety and health in the workplace...

Protect your workers in and around bin sites

Several types of entanglement hazards may exist when working in or around grain bins. Equipment used to fill and discharge grain storage structures needs to be properly guarded to prevent workers from hazards that could cause physical harm or death.

Pertinent to this Safety Tips Sheet, the Occupational Safety and Health Administration's (OSHA) Grain Handling Standard - [29 CFR 1910.272 \(g\) \(bins, silos and tanks\)](#) – requires that before an employee enters a bin:

1910.272(g)(1)(ii) - All mechanical, electrical, hydraulic, and pneumatic equipment which presents a danger to employees inside grain storage structures shall be deenergized and shall be disconnected, locked-out and tagged, blocked-off, or otherwise prevented from operating by other equally effective means or methods.

Entanglement Hazards

Bin Sweep Augers

OSHA's sweep auger policy memo states that employees are allowed to be physically inside a bin with an energized sweep auger provided that:

- the only unguarded portion of the auger is in the front;
- sub-floor augers are guarded by secure grates or other guards;
- there is an engineering control (such as a standard guardrail attached to the auger, a portable guard rail trailing seven feet behind the auger, or a dead-man switch on an operating control inside an enclosure or attached to a handle that keeps the employee seven feet back from the auger); **and** the facility's bin-entry permit procedures are followed.



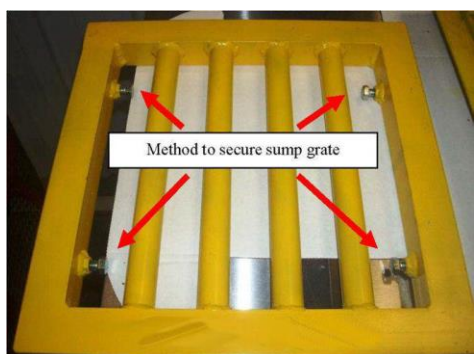
In total, there are 10 safety criteria outlined in the memo regarding employee entry into bins with mobilized sweep augers. Access all 10 by [clicking here](#).

NGFA Safety Program

- The NGFA is committed to promoting safety and health in the workplace and shares the Occupational Safety and Health Administration's (OSHA's) commitment to protecting employees.
- The NGFA's extensive efforts to enhance safety include unprecedented research and education efforts launched in the early 1980s that helped lead to a dramatic reduction in the number of fire and explosion incidents in commercial grain-handling facilities.
- Each year, NGFA jointly sponsors regional safety seminars with affiliated state and regional grain and feed associations. The one-day conferences focus on keeping grain handling employees safe.
- ngfa.org/safety

Sub-Floor and other Reclaim Augers

As mentioned previously, sub-floor augers are to be locked out while an entrant is inside a bin, unless it is guarded and secured in such a way that removes the possibility of an employee coming into contact with its moving parts. [OSHA's 1910.217 Subpart O](#) provides guidelines for addressing other types of augers (such as semi-exposed sloped floor, mobile bin and truck-fill augers).



Belt and Chain/Paddle Drag Conveyors

These systems can be used as a fill or reclaim system. As a fill system, they should be included in the facility's lockout/tagout program for bin entry since they have the potential to create hazardous conditions for workers when inside a bin. When these conveyances are used for reclaiming purposes, the same sub-floor guarding principles described above also apply.



Power Takeoff (PTO) Shafts

PTOs – unless properly guarded – can create wrapping hazards. These hazards could be caused by the joint, burrs, or the air current formed by the rotation. To mitigate the hazard, install shaft guards that cover the entirety of the moving parts. Workers should never step over a rotating shaft or operate controls from outside of the machine, never wear loose-fitting clothing, jewelry or hair, and stay clear of rotating PTO shafts.



NGFA Reference Corner

[OSHA's Laws & Regulations 29 CFR 1910.272 Grain Handling Facilities](#)

[NGFA's Guidance for Sweep Auger Operations in Grain Bins](#)

[OSHA's Laws & Regulations 29 CFR 1910.217 Subpart O Machine Guarding](#)

More safety information at www.ngfa.org

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