Do you have Fall Protection on your tanks? 
Do you have the right fall protection on your tanks?

There are millions of regulated above ground storage tanks in the United States. All of them require access at elevation at some time during their lifecycle. The erectors, users, and owners of these tanks must protect their employees from falls while accessing these tanks for construction, inspection, operations, maintenance, testing, or any other reason that may require a worker to be up on the tank. Fall Protection for above ground storage tanks falls into two categories depending on the task the user is performing. Fall protection used during the construction of tanks falls under OSHA 1926 (1926.501 (b)(1)) and must be provided for work over six feet above the next lowest level, all other activities fall under OSHA 1910 (1910.28 (b)(1)) where fall protection must be provided for work over four feet above the next lowest level.

According to the U.S. Bureau of Labor Statistics fatal work-related falls to a lower level increased by over 26% between 2011 and 2016. According to the National Safety Council, the average cost of a work-related fatality in the United States is $1.15 million dollars, not including lost production during the ensuing shutdown for an investigation, the costs of remediation of the situation that caused the fall, and most importantly the human factor. We all have a moral obligation to ensure that our employees can go home to their loved ones at the end of every workday.

OSHA 1910 and 1926 require protection for all workers at height. They give a prescriptive list of requirements for diverse types of protection but supply little information about how and when to use different systems, what systems are best for specific situations, or provide guidance on which systems will best protect the users. This has led to the creation of the ANSI / ASSE Z359 Family of Standards also known as the fall protection code. The fall protection code is a series of consensus standards created by a group of fall protection experts including end users, manufacturers, academics, fall protection system designers, and engineers. To help owners and designers determine what types of systems to use the ANSI committee created the Fall Hazard Hierarchy of Controls (ANSI Z359.2-2017 7.1). This hierarchy lists the types of systems available in order from best to worst.
Elimination of the fall hazard is the best possible solution. For above ground tanks this would include solutions like designing the tank so that no one was required to work at height during construction, coating the tank in such a way as maintenance would not be required, not having vents, pipes, or gages at elevations which require work at height. In most situations with elevated tanks these solutions are not reasonable or possible.

The second tier in the hierarchy is collective or passive fall protection. This includes things such as KeeGuard or custom guard rails. Users of passive fall protection systems do not need to be trained, which can be advantageous, however unless you are building a new tank and design it with the rails already attached it can be difficult and expensive to add guardrail in the field at best, often it is not possible at all. Retro-fitting these types of systems on existing tanks can require welding which is expensive and is often prohibited due to the materials stored in the tanks. There are railing systems that use weights or counterweights, but these are not practical on steep roofs, roofs where the coefficient of friction is not adequate, or in high wind areas.

The third tier of protection is fall restraint or travel restraint system. These are systems that attach to a tank that allow the user full access to the roof of the tank but does not allow them to fall over the edge. A good example of this type of system is Flexible Lifeline’s Tank Anchor System. These systems include a Flexible Lifeline 180° or 360° tank anchor, a lanyard and cable extender or rope and rope grab, and a compliant harness. These systems require minimal training for the users. The Flexible Lifeline tank anchors are pre-engineered for the most common size anchorages and number of users, but can be custom designed for any size, shape, or number of users with the only limitation being the structural capacity of the anchorage point. Flexible lifeline systems offers an easy to use tank assessment for that can be filled out so that we provide the correct anchor for your tanks. Flexible lifeline Systems can also supply turnkey service that includes verifying the capacity of the anchorage point, design, fabrication, installation, and preparation of all required certifications, all of which are required for any fall protection system to be part of a Comprehensive Managed Fall Protection Program as defined by ANSI Z359.

The lowest tier of protection is a fall arrest system. These systems arrest the fall of the user, they cannot prevent them. These types of systems are at the lowest tier of the hierarchy because they of this. Anytime a user falls there is a potential for death or severe injury. These types of systems also induce the highest loads on the tank or other structure to which they are attached. These systems include a Flexible Lifeline 180° or 360° tank anchor, a leading-edge energy absorbing lanyard and cable extender or self-retracting lifeline, and a compliant harness. These types of systems are the most complex in terms of training, design, usage, and maintenance. The Flexible Lifeline tank anchors for a
fall arrest system must be custom designed to fit the tank, loading requirements, and fall clearances. Choice of the energy absorbing lanyard in these systems is critical to ensure that the distance traveled during a fall will prevent the user from hitting the ground or any obstructions. These types of systems typically require an on-site visit to review the tank and surrounding area. Flexible Lifelines can provide these services as a turn-key project or the owner’s ANSI and OSHA qualified person or engineer can handle them.

The specific requirements for the systems on each of the tiers are defined in OSHA 1910 and 1926 with the best practices and proven methods outlined in the Fall Protection Code – ANSI Z359.

Falling from height on from a tank is a real hazard that our employees face every day. We have both a moral and legal obligation to prevent these types of falls. Tank Anchors are one of the most valuable tools in the arsenal of available fall protection products. They are at the sweet spot where economics intersects optimal safety on the Hierarchy of Fall Protection.

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