

Hazards of Working from Fixed Ladders on Tanks

A worker died from serious head injuries after falling from a fixed ladder attached to a 400 bbl tank. The worker had climbed the ladder to remove a steam hose inserted through the thief hatch to warm the water in the tank. The worker was not using any fall protection. It is believed that the worker lost contact with the ladder when handling the hose and fell approximately 5.5 metres (18 feet) to the ground. He died a few days later from his injuries.

The bottom of the rented tank was equipped with steam-coil outlets that could have been used to warm the water. However, workers did not seem to know they were there and had not been instructed in using steam coils. If steam coils had been used, the worker would not have needed to access the top of the tank.

What can be done to prevent these falls?

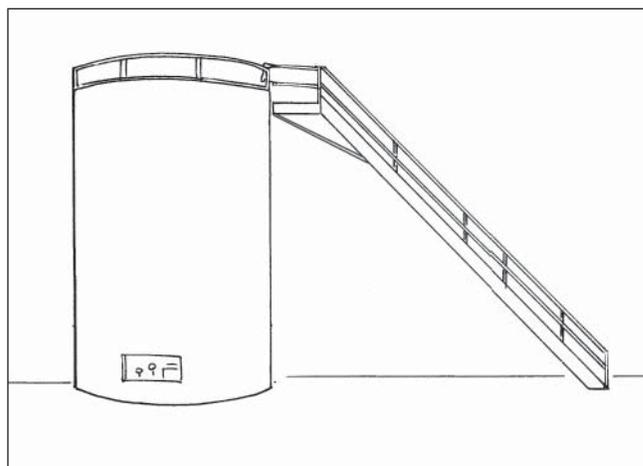
Although the following suggestions are for working safely around 400 bbl tanks, these safe work practices can be adapted to other situations with fixed ladders.

Eliminate the hazard

Provide alternatives so that workers do not need to climb a fixed ladder on the side of the tank. The tank owner may remove the fixed ladder, or the ladder may be blocked off so that workers must use a safe alternative:

- If fluid must be heated or kept warm, use a tank equipped with a steam-coil system that allows steam to be introduced into the bottom of the tank. Make sure that workers are aware of the outlets and how to use them.
- Use external gauges to monitor tank levels and valves to sample liquids. Before using the tank, check that gauges are working and accurate.
- If gauging or other tasks must be done at the top of the tank, use a portable stairway and work platform with guardrails. It takes two

hands to use a gauge tape and most tools, and it is not safe to wrap an arm around a ladder rung and attempt to perform a task. It is especially difficult if the worker is wearing an SCBA. Section 13.6(1) of the Occupational Health and Safety Regulation states: "If work cannot be done from a ladder without hazard to a worker, a work platform must be provided."



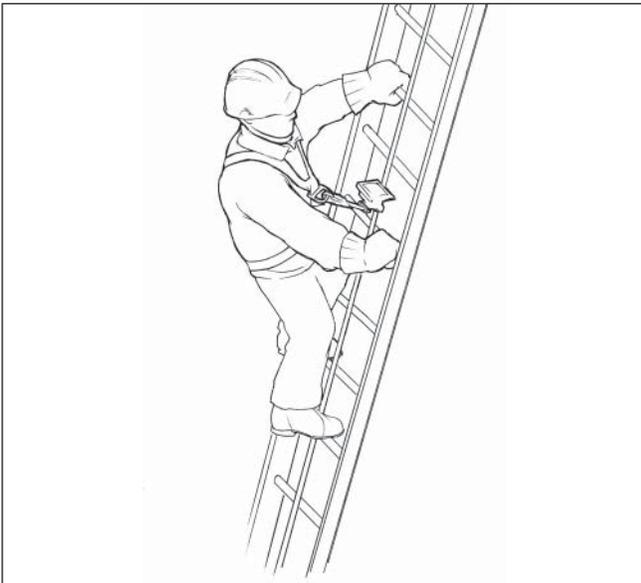
External gauges or a portable stairway provide a safe alternative to climbing a fixed ladder on a tank.



Minimize the hazard

If it has been determined that it is safe to do the work from the top of a fixed ladder, follow these safe work practices:

- Ensure ladders are in a safe condition with no bent or missing rungs or other damage.
- If a worker is working from a ladder, ensure that the fall protection system meets the requirements of the Occupational Health and Safety Regulation, Part 11. A ring or safety cage on a fixed ladder is **not** effective fall protection when working from a ladder.
- If a ladder safety system is used as a fall protection system, ensure that it meets the appropriate standard, such as *ANSI A14.3 American National Standard for Ladders – Fixed – Safety Requirements*. A ladder safety system should not restrict access to the ladder in any way. Remember, workers may be wearing heavy winter boots.
- Ensure that a plan is in place to rescue a worker who may become incapacitated while suspended in a personal fall protection system.



A ladder safety system will arrest the fall of a worker.

Inspect tanks and equipment

- Inspect tanks when they arrive on-site to ensure that they have the equipment ordered for safe work, such as steam coils and external gauges, or if necessary, a portable stairway or properly engineered ladder safety system.
- Ensure that all fittings, external gauges, and valves are in working condition.
- Ensure that suppliers provide written instructions regarding the use of equipment such as valves, steam coils, and gauges.
- Label steam coils, valves, and other equipment so that workers can readily identify them.
- Provide workers with a checklist or procedures for inspecting and using the tank.

Train workers

- Train workers in the proper use of all equipment.
- If workers must work from the top of the tank, train them to use the fall protection system provided.
- Ensure that workers are aware of all the hazards involved in accessing the tank and its contents. For example, if hydrogen sulfide (H_2S) may be present, the contents are extremely toxic.

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