

Safety in Wind Energy – Fall Protection

AWEA's Safety and Health Strategy:

Worker safety and health are core values of the wind energy industry.

Support continuous training of wind industry employers and employees.

Empower workers to take ownership of safety and health programs.

Educate and Cooperate regulating agencies about how wind projects are developed and maintained.

Create and Distribute appropriate safety and health training programs and educational materials.

Monitor the injury and illness rate within the industry.

Identify high hazard areas.

Develop solutions to eliminate or reduce these hazards

Always remember to report injuries and incidents to the supervisor.

FOR MORE INFORMATION, PLEASE CONTACT:

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Working at heights is an inevitable component of wind farm construction. Any time a worker is at a height of six feet or more (construction industry) or four feet or more (general industry), the worker must be protected. Working above these elevations is a common occurrence in the wind industry. According to the OSHA's construction industry Subpart M (§1926.500) fall protection standard, workers must be protected from all fall exposures of six feet or greater.

Personal Protective Equipment (PPE)

- Required PPE for workers exposed to a fall at or greater than six feet shall include an approved personal fall arrest system (PFAS) (commonly used systems in wind are the safety climb up the fixed ladder, twin-tail lanyard, and even Self-Retracting Lifelines (SRL's)).
- All fall arrest equipment shall be designed and intended for industrial climbing.
- Harnesses shall be full-body type and shall fit the employee properly.
- Ladder climbing devices shall be designed for the cable or ladder climbing safety system installed on the structure; this is most often a 3/8" safety climb cable.
- For work that would exposes an employee to a free fall distance greater than six feet (e.g., working on top of the roof of a nacelle) a 12-foot free fall personal energy-absorbing lanyard ("12 ft FF") must be used, as referenced by ANSI Z359.13.
- For all other turbine and met tower climbing, fall arrest lanyards shall be, at a minimum, 6 foot free fall ("6 ft FF") twin-tail lanyards.
- Employees may select positioning lanyards at their discretion, although the positioning lanyard must be designed for industrial climbing purposes.
- Fall-arrest lanyards must not be used other than for fall-arrest protection purposes.
- Harnesses used for tower climbing shall have, at a minimum, both dorsal (back) and chest D-rings. Shock absorbing lanyards used for tower climbing shall be double-legged to facilitate 100% tie off.
- Like any other system, a PFAS is only as good as its weakest link, so the choice of anchorage is critical. The anchorage is the secure point of attachment for the lanyards. Due to the significant forces generated during a fall, the anchorage must be capable of supporting at least 5,000 pounds.

Equipment Inspection

- Employees shall inspect their equipment prior to use daily. On a quarterly basis, a more thorough inspection should be performed and documented.
- All equipment that is damaged shall be taken out of service; any



General Climbing Safe Work Practices

- Maintain 100% tie-off at all times when exposed to a fall distance of or greater than six feet, utilizing a properly installed fall arrest device (i.e., safety climb system, twin-tailed fall arrest lanyards, and self-retracting lifeline).
- A climber's hands, gloves, and shoes must be free of mud, grease, or other slippery foreign substances prior to climbing.
- All tools and parts must be secured to an employee's body with a lanyard, stored in a closeable pocket, or carried in a closeable bag or bucket.
- Never position or climb within the fall distance of a climber above. This fall distance will vary depending on the fall arrest equipment being used and must be continuously evaluated by both climbers.
- Rest regularly while climbing.
- Do not use safety climb system as a resting device; rest at turbine platforms or utilize a positioning lanyard while resting.
- Whenever possible, ground personnel should remain clear of the tower during all climbing activities. If ground personnel must work near the base of a tower while climbing occurs, they must remain continuously aware of hazards overhead.
- A trained employee is the final component of a PFAS. No employee should be permitted or required to use a PFAS unless they have been thoroughly trained in the nature of the fall hazards, use, inspection, maintenance, and limitations of the fall protection system.

Turbine Climbing Safe Work Practices

- Climb tower only when turbine is in the "off" position unless otherwise trained and authorized by the site safety manager or operations and maintenance representative.
- Climbers should close platform doors after passing through them.
- Correct or report any loose parts found on a tower or nacelle.
- The first person to climb the tower ladder should wipe any grease or oil from the ladder or climbing surfaces.
- If turbine elevators or climbing assistance devices are to be used, follow all safety instructions and rules given by the equipment manufacturer, turbine manufacturer, and site staff.

Bear in mind that a PFSA is not intended to prevent falls, but merely prevent the employee from contacting a lower surface in the event of a fall. In selecting a PFSA, the fall distance must be calculated to ensure it prevents an individual from striking anything below.