



FALL PREVENTION ALLIANCE TOOLBOX TALK ON

RESCUE PLAN: EMERGENCY (PULLEY SYSTEM)

Company: _____ Job Site Location: _____

Date: _____ Start Time: _____ Finish Time: _____ Foreman/Supervisor: _____

Pulley systems have been used for centuries to move heavy loads. A properly rigged 4:1 system takes about 60 pounds of force to raise a 200-pound person; a task that one adult can accomplish easily. Pulley systems are safe, inexpensive, easy to rig, and can raise or lower a suspended worker from any height. You will need a long rope to make the system an efficient one. Lowering a person 50 feet with a 4:1 system requires a 240-foot rope (four times 50 feet plus 40 feet as a safety margin).

Pulley system equipment: (Make sure the equipment is rated for rescue work and has at least a 5,000-pound load capacity.) Use a large pad to protect the rope and to reduce friction over an unprotected edge, two pulleys, two carabiners, a rope long enough to accomplish the rescue, plus additional length as a safety factor.

- 1) Connect the leading end of the pulley system to an anchor with at least a 5,000-pound load capacity. Be sure to place the rope pad under the ropes; the pad protects the ropes and reduces friction. Lower the trailing end of the system to the suspended worker.
- 2) Attach the pulley carabiner on the trailing end of the system to the D-ring on the body harness. (Here the worker attaches it to the D-ring connector on his back. You can also attach the trailing end to the rappel attachment on the front of a body harness.)
- 3) Begin raising the worker until he can reach and unlock the rope grab on the fall-arrest system.
- 4) After the worker has unlocked the rope grab, lower or raise the worker to a safe landing area.

Winch systems: Winch systems have been around a long time. Small gears provide the mechanical advantage for these systems. Winch systems are easy to operate, will raise or lower a suspended worker, and require little physical effort. A manual winch with 20:1 gearing takes about 12 pounds of turning force to raise a 200-pound worker; a task that one adult can accomplish easily.

However, an appropriately geared manual winch requires many turns of a crank to lower a victim more than a few feet. Winch systems designed for rescues are expensive, and are not practical if the rescue distance is greater than 100 feet.

Conclusion: Anyone who is suspended from a lifeline and cannot perform a self rescue will need help from trained rescuers.

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Through the OSHA and Houston Fall Prevention Alliance, this Toolbox Talk was developed for informational purposes only. It does not necessarily reflect the official views of OSHA or the U.S. Department of Labor. July 2016.

The Houston Fall Prevention Alliance was formed by the below organizations to provide their members, and others, with information, guidance and access to training resources that will help them protect the health and safety of workers, particularly by reducing and preventing exposure to fall hazards in the construction industries and addressing fall related issues and understand the rights of workers and the responsibilities of employers under the Occupational Safety and Health Act (OSH Act). In developing this alliance, these organizations recognize that OSHA's State Plan and On-site Consultation Project partners are an integral part of the OSHA national effort.





Houston
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