

polyester rope. Manila rope is not recommended because of its low strength, and susceptibility to deterioration that is difficult to detect by inspection.

Section 1910.31 Mobile work platforms, ladder stands, and powered industrial truck platforms.

1. *Mobile work platforms and ladder stands.* Although not required by this standard, it is recommended that the employer insist on test data or a certification from manufacturers to assure that the mobile work platforms and ladder stands which the employer purchases meet the requirements of this standard.

2. *Safe operating instructions.* It is recommended that mobile elevating work platforms have instructions for safe operation displayed in a permanent and visible location, with at least the following information:

- (i) Warnings, cautions, or restrictions for safe operation.
- (ii) Make, model, serial number, and manufacturer's name and address.
- (iii) Rated work load.
- (iv) Maximum platform height.
- (v) Normal voltage rating of the batteries if battery powered, or line voltage if A.C. powered.

(vi) Alternate statement of configurations and rated capacities, if applicable.

(vii) The level of electrical insulation of the work platform, if any.

3. *Standing and climbing on mobile work platforms.* Only systems that are specifically designed by a qualified person to be used with devices to increase working heights should be used when additional height is necessary. It is also recommended that when employees are climbing or descending work platforms, both hands be free to aid in climbing. Tools should be worn on a work belt or hoisted up and down by a line after the worker reaches the work position.

4. *Increasing platform heights.* Acceptable means, other than outriggers, that allow increasing the platform height of mobile ladder stands and platforms could include securing the units with chains or ropes to stabilize the units from tipping. The chains or ropes would have to have sufficient strength to hold the unit and the weight of

the employee(s) as well as any other object that may be placed on it.

Section 1910.32 Special Surfaces

1. *Training.* Training is an important factor for employee safety on all special work surfaces. As a minimum, the employer should institute a training program for employees to recognize and avoid the special hazards involved with the particular surface. Training should be conducted to give the employee a better understanding of the actual working conditions and hazards related to the specific hazard. Retraining may be necessary if an employee has been away from one of these activities for a prolonged period of time.

2. *Repair pits and assembly pits.* Repair pits and assembly pits are not only applicable to cars, trucks, and buses, but are also applicable to locomotives, subway and railroad cars and other operations where employees enter a pit and work on overhead objects. The use of a combination of floor markings and stanchions may be used around the exposed edges of the pits provided the overall system is continuous. Warning signs, if used to restrict entry to the pit area, do not necessarily need to be posted at the pit but may be posted in conspicuous locations around the pit area.

3. *Slaughtering facilities.* Acceptable alternative fall protection systems that can be used in slaughtering facilities instead of toeboards to prevent employee's from falling off the open side of the work platform would include the use of safety belts or harnesses and lanyards meeting the requirements of subpart I.

4. *Working sides of loading racks, loading docks, teeming tables, and similar locations.* Even though the working sides of loading racks, loading docks, teeming tables, and similar locations are exempt from the requirements of § 1910.27, it is recommended that safety belts or harnesses, or other fall protection be used whenever possible.

5. *Qualified climbers.* The qualified climber's physical condition should be such that climbing exercise will not impair health and safety. This ability can be determined by physical performance tests. A physical examination by a physician who is aware of the duties that the employee is expected to

perform is acceptable. Successful completion of a training program for the type of structures that are to be climbed will also be considered as proof of the climber's physical capabilities.

It is recommended as a minimum that the training program for qualified climbers consist of classroom training and climbing training. The classroom training should consist of information on the structural characteristics, the types and significance of using safety equipment and the procedures for safe climbing. It should also include discussions of the risks involved with climbing structures and the activities to be performed on the structure, as well as discussions of emergency procedures, accident causes, and factors such as bad weather that tend to increase the risks involved in climbing.

Climbing training should consist of classroom type instruction followed by the individual observing an experienced climber performing one or more climbs on the type of structure for which the individual is being trained to climb. Actual climbing during training should be initiated under close supervision and with the use of redundant safety equipment. The rate of reduction in supervision and the use of safety equipment will be a matter of subjective judgment by the trainer. Climbers should only be permitted to work without fall protection once the employee has demonstrated the necessary ability and skill in climbing structures without fall protection.

Appendix B to Subpart D—National Consensus Standards

Note: The following appendix to subpart D serves as a nonmandatory guideline to assist employers and employees in complying with these sections and to provide other helpful information. This appendix neither adds to nor detracts from the obligations contained in the OSHA standard.

The following table lists the current national consensus standards which contain information and guidelines that would be considered acceptable in complying with the requirements in the specific sections of subpart D, to the extent that they do not conflict with the standard.

Subpart D	National consensus standard
§ 1910.23	ANSI A14.1, American National Standard for Safety Requirements for Portable Wood Ladders. ANSI A14.2, American National Standard for Safety Requirements for Portable Metal Ladders. ANSI A14.3, American National Standard for Safety Requirements for Fixed Ladders. ANSI A14.4, American National Standard for Safety Requirements for Job-Made Ladders. ANSI A14.5, American National Standard for Safety Requirements for Portable Reinforced Plastic Ladders.
§ 1910.24	ASTM C478, American Society for Testing and Materials Specifications for Precast Reinforced Concrete Manhole Sections. ASTM A394, American Society for Testing and Materials Specifications for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners.
§ 1910.25	ANSI A64.1, American National Standard for Requirements for Fixed Industrial Stairs. ANSI/IES RP7, American National Standard Practice for Industrial Lighting.
§ 1910.26	ANSI MH14.1, American National Standard for Industrial Loading Dock Levelers and Dockboards.
§ 1910.27	ANSI A58.1, American National Standard for Minimum Design Loads for Buildings and Other Structure. ANSI A12.1, American National Standard for Safety Requirements for Floor and Wall Openings, Railings, and Toeboards.