



TDCJ Risk Management's Training Circular

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July Preventing Slips, Trips, and Falls: Ladder Safety



According to the Bureau of Labor Statistics Occupational Injuries and Illnesses Requiring Days Away from Work 2012 report, slips, trips, and falls constitute the majority of general industry mishaps. This particular category of mishaps causes 23 percent of all accidental deaths and is second only to overexertion and bodily reaction.

Likewise, in covered state agencies, slips, trips, and falls are among the most frequent type of reported injuries and have so far averaged approximately 25 percent of reported claims in any given fiscal year. TDCJ averages about 20 percent of employee injuries associated with slips, trips, and falls each month.



Based on in depth investigations and detailed analysis of reported claims, many of them could have been prevented.

Understanding Slips, Trips, and Falls

Often slips, trips, and falls are considered a single cause of accidents and injuries in the workplace. In order to prevent these accidents and injuries, it is important to understand there are significant differences in the direct causes of these incidents. Discussed here will be specifically fall prevention related to ladders.

Falls

Falls are a persistent hazard found in all occupational settings. A fall can occur during the simple acts of walking, climbing a ladder to change a light fixture, or as a result of a complex series of events affecting a worker above the ground. Occupational safety standards require fall protec-

tion for general industry when accessing heights above 4 feet and 6 feet for the construction industry.

Circumstances associated with fall incidents in the work environment frequently involve slippery, cluttered, or unstable walking/working surfaces; unprotected edges; floor holes and wall openings; unsafely positioned ladders; and misused fall protection. Federal regulations and industry consensus standards provide specific measures and performance-based recommendations for fall prevention and protection. However, persistent unsafe practices and low safety culture across many industries define steady fall injury rates year after year.

Ladders



Often it is required to access a height within the workplace. Choosing the appropriate method to access these levels is crucial

to the safety of the individual performing this task. Using improper climbing devices such as a chair, desk, boxes or other similar items not designed for a person to climb on poses a severe safety risk and would be considered an unsafe act. Knowing the types of ladders available will aid in determining which is right for the job.

Ladders are built from one of three basic materials: wood, fiberglass, and metal (aluminum).

The proper ladder length must be selected. It is unsafe to use a ladder that is too long or too short. When using a step ladder, for example, standing on the top cap or the step below the top cap is not permitted due to the increased likelihood of losing your balance. Likewise, when using an extension ladder, the top three rungs are not to be used for climbing. A straight ladder is too long, for example, if ceiling height prohibits the ladder from being set-up at the proper angle. Likewise, an extension ladder is too long if the ladder extends more than 3 feet beyond the upper support point. In this case, the portion of the ladder that extends above the upper support point can act like a lever and cause the base of the ladder to move or slide out. Safety standards require a label on the ladder to indicate the highest standing level.

Next, consider the duty rating of the ladder. This is an indication of the maximum weight capacity the ladder can safely carry. There are five categories of ladder duty ratings:

- Type IAA (Extra Heavy Duty) 375 pounds
- Type IA (Extra Heavy Duty) 300 pounds
- Type I (Heavy Duty) 250 pounds
- Type II (Medium Duty) 225 pounds
- Type III (Light Duty) 200 pounds

The duty rating of your ladder can be found on the specifications label. Safety standards require a duty rating sticker to be placed on the side of every ladder. Do not assume that a longer ladder has a higher weight capacity. There is no relationship between ladder length and weight capacity.

Stepladder

The stepladder is a self-supporting, portable ladder that is non-adjustable in length, with flat steps and a hinged design for ease of storage. It is intended for use by one person.



Stepladders range in size from 3 ft. to 20 ft in length along the side rail. Stepladders shorter than 3 ft are considered step stools. The highest standing level on a stepladder is slightly more than 2 ft from the top of the ladder. The highest standing level is required to be marked on the specifications label on the side rail of the product. Therefore, when planning your job, the maximum work height is established by adding the user's height and reach to the highest standing level of the stepladder.

A stepladder requires level ground support for all four of its side rails. If this worksite condition does not exist, a stepladder should not be selected for the job.

A stepladder must not be used unless its base is spread fully open with the spreaders locked. Stepladders are not to be used as single ladders or in the partially open position.

When ascending or descending the ladder, always face the ladder and maintain a firm hand hold. Do not attempt to carry other objects in your hand(s) while climbing.

The braces on the rear of a stepladder are not intended for climbing or standing and must not be used for that purpose. Note, however, that special stepladders are available with steps on both the front and rear and are intended for two users at the same time.

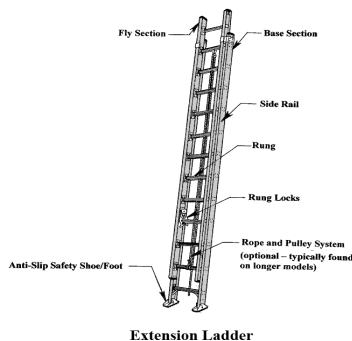
The anti-slip feet at the bottom of the stepladder side rails must be present and in good condition prior to using the ladder. The ladder must not be used on ice, snow or slippery surfaces unless suitable means to prevent slipping are employed.

A stepladder must never be placed upon other objects such as boxes, barrels, scaffolds, or other unstable bases in an effort to obtain additional height.

Extension Ladders

The extension ladder is a non-self-supporting, portable ladder that is adjustable in length. It consists of two or more sections that travel in guides or brackets so arranged so as to permit length adjustment. It is intended for use by one person.

Extension ladders are built with either two or three adjustable telescopic sections. The maximum extended length is dependent upon the number of sections as well as the duty rating of the ladder.



The base section of an extension ladder must be equipped with slip-resistant feet such as safety shoes, spurs, spikes, conformable shoes, and flat or radiused tread feet.

Proper Use

Unlike a stepladder that requires level support for all four of its side rails, the extension ladder requires only two level ground support points in addition to a top support. Ladder levelers may be used to achieve equal rail support on uneven surfaces. The top support also allows the opportunity to secure or tie off the top of the ladder to increase stability.

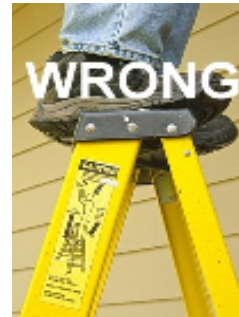
In order to prevent tipping the ladder over sideways due to over-reaching, the user must climb or work with the body near the middle of the rungs.

Never attempt to move the ladder without first descending, relocating the ladder, and then re-climbing. Do not attempt to mount the ladder from the side or step from one ladder to another unless the ladder is secured against sideways motion.

In an effort to avoid losing your balance and falling off an extension ladder, the user must not step or stand higher than the step indicated on the label marking the highest standing level.

Extension ladders should be erected as close to a pitch of

75 1/2 degrees from the horizontal as possible for optimum resistance against the bottom of the ladder sliding out, strength of the ladder, and balance of the climber. A simple rule for setting-up the ladder at the proper angle is to place the base a distance from the wall or upper support equal to one-quarter of the extended length of the ladder side rails.



When ascending or descending the ladder, always face the ladder and maintain a firm hand hold.

Do not attempt to carry other objects in your hand(s) while climbing.

An Extension ladder must never be placed upon other objects such as boxes, barrels, scaffolds, or other unstable bases in an effort to obtain additional height. When it is necessary to support the top of the ladder at a window opening, a device should be attached across the back of the ladder and extending across the window to provide firm support against the building walls or window frames.

Proper Care of Ladders

A thorough inspection must be made when the ladder is initially purchased and each time

it is placed into service. Clean the climbing and gripping surfaces if they have been subjected to oil, grease or slippery materials. Working parts, bolts, rivets, step-to-side rail connections, and the condition of the anti-slip feet (safety shoes) shall be checked. If structural damage, missing parts, or any other hazardous defect is found, the ladder must not be placed into service and either discarded or competently repaired.



Ladders exposed to excessive heat, as in the case of fire, may have reduced strength. Similarly, ladders exposed to corrosive substances such as acids or alkali materials may experience chemical corrosion and a resulting reduction in strength. Remove these ladders from service.

Ladders with bent or broken side rails must be destroyed. In the event a ladder is discarded, it must be destroyed in such a manner as to render it useless. Another person must not be afforded the opportunity to use a ladder that has been deemed unsafe.

When transporting ladders on vehicles equipped with ladder racks, the ladders must be properly supported. Overhang of the ladders beyond the support points of the rack should be minimized. The support of material such as wood or rubber-covered pipe to minimize the effects of vibration, chafing and road shock. Securing the ladder to each support point will greatly reduce the damaging effects of road shock.

Storage racks for ladders not in use should have sufficient supporting points to avoid sagging which can result in warping the ladder. Other materials must not be placed on the ladder while it is in storage.

Safe Practice

Only those individuals trained on ladder use should attempt to access heights using ladders. Always follow manufacturer recommended practice when using ladders.

References

- American Ladder Safety Institute. <http://www.laddersafety.org/>
- Bureau of Labor Statistics http://www.bls.gov/news.release/archives/osh2_11262013.pdf
- Centers for Disease Control (CDC) <http://www.cdc.gov/niosh/>

[topics/falls/?utm_source=900004743+COM+2014+NSM+June+Deliv+-+Wk+1+EM&utm_campaign=900004743&utm_medium=email](http://www.sorm.state.tx.us/topics/falls/?utm_source=900004743+COM+2014+NSM+June+Deliv+-+Wk+1+EM&utm_campaign=900004743&utm_medium=email)

- State Office of Risk Management

<http://www.sorm.state.tx.us/risk-management/safety-puzzle/slips-trips-and-falls>



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