

Appalachian Power Company Policy No. 15:
Ladder Setup

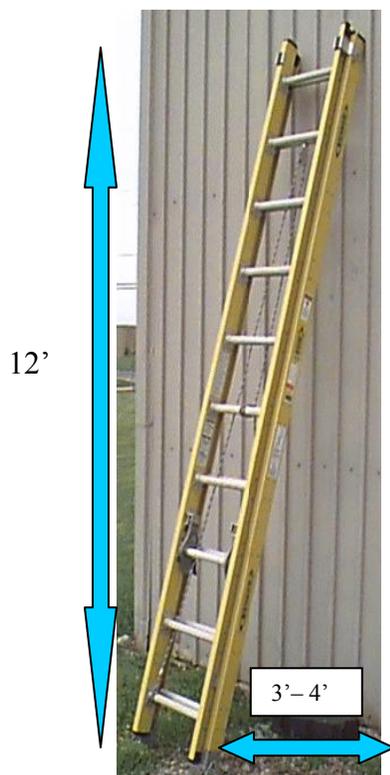
1) Statement of policy:

The use of ladders by employees is required to accomplish a variety of tasks on a routine basis. By properly carrying, setting up and securing the ladder, the risk of injury or damage to property can be reduced.

2) Discussion:

Basically, four types of ladders are used in AEP Distribution. The heavy-duty single ladder, extension ladder, manhole ladder (all straight ladders), and stepladder, which are, in the Electric Industry, usually fiberglass. Each type of ladder is purchased in various lengths. Throughout the AEP Safety Manual there are safety aspects for setting up ladders that must be considered and followed. In this module, you will learn how to safely set up each type of ladder.

When setting up a straight ladder the angle it is placed against a stationary object is very important. “The base of the ladder should not be placed less than one quarter of it’s working length from a wall or supporting surface and not farther than one third of the working length unless securely held or tied in place”. You should never stand on either top two rungs of a straight ladder.



How to Set up Your Ladder Properly

The scale below shows some examples of proper distances the ladder base should be from the fixed object. Remember, “not less than one quarter – not more than one third of the working length”.

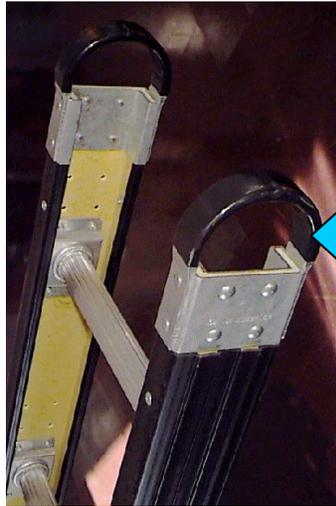
Height	Distance From Wall
10'	2'6" to 3'4"
12'	3' to 4'
15'	3'8" to 5'
20'	5' to 6'8"

FIGURE 1

3) Definitions:

SINGLE LADDERS

The top of the single ladder is equipped with rubber protectors, (Figures 2a and 2b) which helps keep the ladder from sliding or slipping when placed against a flat surface.



Rubber

FIGURE 2a



Rubber

FIGURE 2b

The base of the ladder is equipped with safety feet (Figure 3a). The safety feet serve two purposes. When placing the ladder on hard surfaces like concrete or asphalt, the shoe will be positioned with the rubber part of the feet flat on the surface (Figure 3b). When placing ladder on soft surfaces such as grass or sand, the feet will be positioned with the point digging into the soft surface (Figure 3c).



Safety Foot

FIGURE 3a – (Safety Feet)



FIGURE 3b
Hard surface: position rubber part



FIGURE 3c
Soft surface: pointed ends of feet positioned to penetrate the earth

EXTENSION LADDERS

The top and bottom of the extension ladder is constructed the same as the single ladder. They also have rubber protectors on the top and safety feet on the bottom. The extension ladder shall be in the vertical position before extending it. After the ladder is in the desired position, check to make sure both latches of the extension ladder are seated properly on the rungs. When extending the ladder, make sure you have at least 3 feet overlap between the two parts of the extension ladder. When lowering the extension, keep your hands on the outside rail.



FIGURE 4

MANHOLE LADDERS

This type of ladder is only used in manholes or other enclosed workspaces. The top of the ladder is equipped with hand rings for lowering or raising. Each leg of the ladder has a rubber protector to prevent damage to the leg. The safety shoes are curved to allow better footing on a concrete floor.



Curved Shoe

FIGURE 5a

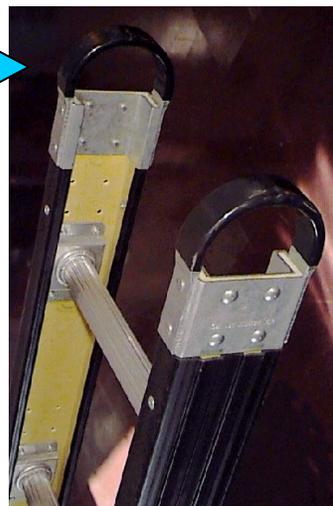


FIGURE 5b

STEPLADDER

When setting up the stepladder it shall be positioned on a level surface. The spreaders will be fully extended and locked. When closing a stepladder, caution should be exercised not to pinch or mash hands. Never step beyond the top two steps of the stepladder.



FIGURE 6

SECURING LADDERS

The AEP Safety Manual requires that portable ladders, which are not stable, be securely tied or held by a person on the ground. When installing a temporary service or a service to a mobile home, it is often necessary to use a ladder leaned against a pole. This creates an unstable situation. The following illustrates a means of securing a ladder to the pole before ascending it.



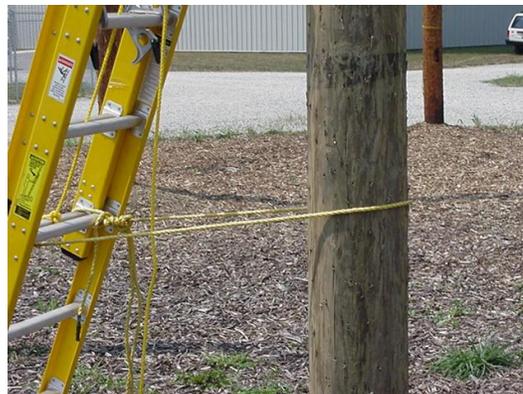
Step 1: Tie one end of a rope to the top rung of the top section of the ladder.



Step 2: Wrap the rope around the pole.



Step 3: Flip the rope over the top of the leg so it rests on the top rung.



Step 4: Pass the rope under one of the lower rungs, around the pole, and secure it snugly to the rung that the rope passes under.

The ladder is now secure and safe to climb.

It is very common in our area to need to setup a ladder on uneven terrain. Shown below are two examples of using a ladder with automatic levelers. When you must work on uneven surfaces, this type of ladder or other means shall be used to reduce the possibility of the ladder shifting.



CARRYING EXTENSION OR OTHER LARGE LADDERS

The carrying of an extension or other large ladder is seemingly a rather mundane task to which any significant degree of thought is seldom given. The natural human tendency is for the worker to be considering other aspects of the job at the time the ladder is being carried. However, too many of your fellow workers have been seriously injured as a result of improperly carrying a ladder, the task they were performing while thinking of something else.

Before attempting to carry an extension ladder, the pulley line should be checked to be securely tied. This will prevent the ladder from shifting during carry.

Fig. 7



In situations where only one person will be carrying the ladder and no difficulty in maneuvering is likely, the “High Shoulder Method” should be used. As the mechanic has done in Fig. 8, face the foot of the ladder and place one arm between the beams at the balance point so that the ladder hangs under your shoulder.



Fig. 8

Note also that the mechanic has the inside portion of the ladder resting on his shoulder placing the weight nearer to the center line of his body.



Fig. 9

It's a good idea to mark the balance point of your ladder as shown in Fig. 10.



Fig. 10

In situations where you may encounter difficulty in maneuvering the ladder, it should be carried at your side as shown in Fig. 11.



Fig. 11

Ladders should never be carried entirely atop the shoulder as shown in Fig. 12 because it places the ladder's center of gravity above shoulder level, making it extremely difficult to maintain balance and control.



Fig. 12

There will be times when weather conditions, treacherous footing, close maneuvering quarters, extremely large ladders (i.e. 24+'), etc. make carrying the ladder yourself unwise. Do not hesitate to ask for assistance whenever it is needed.



Fig. 13

4) Safety / OSHA Manual References:

Safety Manual G 4.36

Ladders must be set up and positioned securely. A secure ladder is one that is set up with all hardware properly engaged and positioned on firm level ground and, in the case of extension and straight ladders, at the proper angle.

Safety Manual G 4.37

Additional reasonable means shall be taken when practical to ensure the stability of extension and straight ladders, such as tying off the ladder to a suitable anchorage point or having a coworker foot the ladder, so long as that does not result in a line-of-fire issue from using or handling tools or materials above them.

Safety Manual G 4.38

Persons ascending or descending a ladder shall face the ladder, use both hands, and use each rung, so that they can maintain 3-points of contact at all times (i.e., 1 hand/2 feet or 2 hands/1 foot) or be secured in fall protection.

Safety Manual G 4.39

All portable ladders, except hook ladders, shall be equipped with suitable safety feet. Where safety feet do not address the hazard of slipping, the ladder shall be securely held in place by tying or by a person at the foot.

Safety Manual G 4.40

Stepladders shall not be used in a closed or a partially opened position unless designed to be used this way.

Safety Manual G 4.41

Unless specifically designed, only one (1) person shall be on a ladder at any time.

Safety Manual G 4.42

Straight or extension ladders shall not be climbed higher than the third rung from the top, nor the second step from the top of ordinary stepladders, except when transitioning to a pole or structure from a secured ladder.

Safety Manual G 4.43

Ladders used to gain access to roofs or platforms shall extend at least three feet (or rungs) above the roof or platform. The minimum overlap of sections on an extension ladder shall be three rungs for ladders up to 36 feet long, and five rungs for ladders greater than 36 feet up to 60 feet long

There are numerous references in the OSHA regulations to ladder safety. In order to limit the size of this policy, only the AEP Safety Manual references will be listed here.