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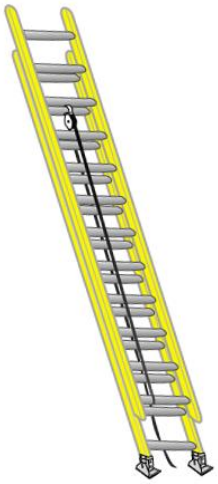
OSHA Requirements for Ladders



Ladder requirements are found in the following parts of the OSHA regulations:

- General industry practices 29 CFR 1910 Subpart D: Walking–Working Surfaces
- Construction industry practices 29 CFR 1926 Subpart X: Stairways and ladders
- 29 CFR 1910.268 paragraph (h)

You are encouraged to look at the specific regulations by going to: **www.osha.gov**

Ladder Handling

Many injuries are caused by improper handling of ladders. The typical 28 foot fiberglass extension ladder used by the cable industry weighs in the neighborhood of 70-75 pounds. Add levelers, and you can easily have 100 pounds that you are trying to "horse around". It is important that you handle ladders with proper leverage and lifting techniques.

Let's start with unloading the ladder from the vehicle. There are many types of ladder racks used, we will describe two. The type of ladder rack will determine how you remove it from the vehicle.

In all situations, remember to use your legs to handle most of the weight of the ladder.

Unloading the Ladder from a Top Ladder Rack

- When removing the ladder from the rear of the rack, pull it only to the point where the ladder's weight will allow it to gravitate to the ground.

- Set the feet of the ladder on the ground and then using proper body mechanics, lift the ladder to the shoulder to remove it completely off the vehicle.

Ladder Handling (Continued)

Unloading the Ladder from a Side Ladder Rack

- When removing the ladder from the side of the vehicle, grab the lower part of the ladder and rotate it to the ground.

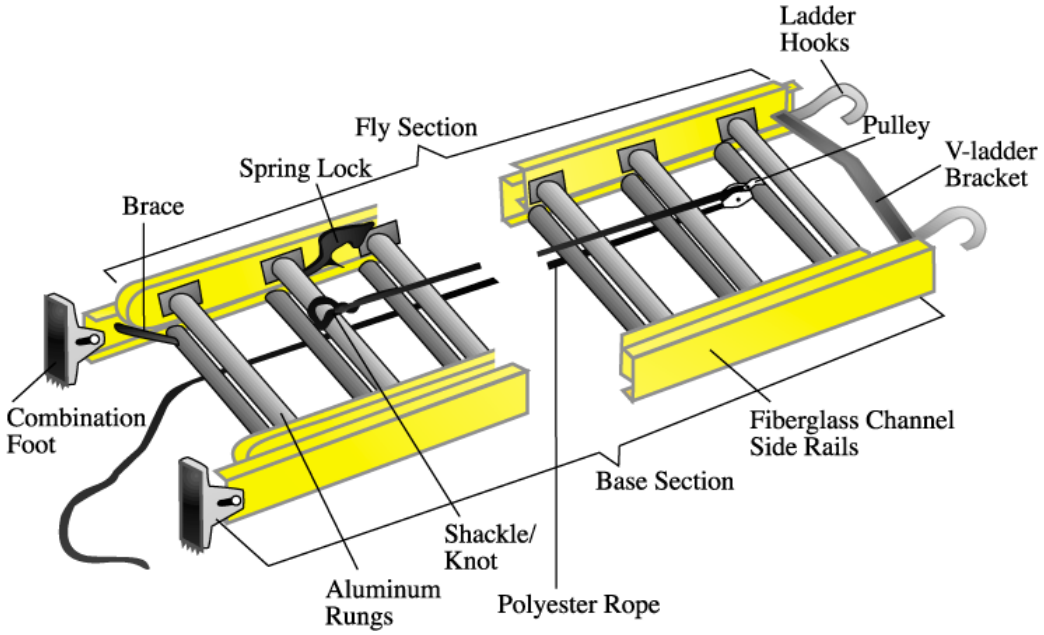
- Once the feet are resting on the ground, again use proper body mechanics (keep back straight and bend your knees) to lift the ladder off the vehicle.

Inspecting the Ladder

OSHA requires that ladders be inspected before use and periodically thereafter.

- After the ladder is off the vehicle, and being used for the first time during the day, place it on the ground and conduct a visual inspection of the ladder.
- Periodic inspections are normally done annually and by a competent person.
- Periodic ladder inspections should be documented.

Fiberglass Ladder Components



Review the guidelines for Fiberglass Ladder Inspections on the next page and consider the following after inspecting your ladder.

- If you find a problem that makes the ladder unsafe to use, **DO NOT USE IT**.
- Report the problem to the supervisor and replace, repair or destroy the defective ladder.

FIBERGLASS LADDER INSPECTION GUIDELINE

ITEM	INSPECT FOR	LIMIT OF DEFECTS (NOTES 1&2)
Side rails	Cracks Dents Fractures Gouges Splits (note 3)	Surface crack - 6 inches long Fracture (web) - 3 inches long Fracture (flange) - 2 1/2 inches long Gouge (web) - 5/8 inch square by 1/8 inch deep Gouge (flange) - 3/8 inch long by 1/8 inch deep See through gouge (web) 1/2 inch square See through gouge (flange) - 1/4 inch square Crack (web) - 1 1/2 inches long Crack (flange) - 3/4 inches long Open crack (web) - 3/8 inches long Open crack (flange) - 1/4 inches long
Rungs	Cracks (note 4)	All of the following are unacceptable: - cracked - severely bent - loose - excessively worn
Rung Braces/ Rivets	Cracks Missing parts	All of the following are unacceptable: - missing - cracked - defective
Hooks/Locks/ Flippers/Pulley	Cracks Security Freedom of operation (notes 5 & 6) Distortions Bends	All of the following are unacceptable: - cracked - broken - bent - defective - distorted
Rope	Fraying Rotting (especially at pulley)	All of the following are unacceptable: - excessively frayed or worn - rotted
Leveler	Cracks Looseness Dents Missing parts Freedom of operation Bends	All of the following are unacceptable: - cracked - loose - dents, gouges - missing - defective - severely bent
Foot Pads	Missing parts Pad wear	All of the following are unacceptable: - missing - badly worn

Note #1: A ladder having a condition exceeding these limitations shall be removed from service.

Note #2: Defective hardware exceeding these limitations may be repaired or replaced. If not corrected, the ladder must be removed from service.

Note #3: Cracks, splits and fracture defects can be identified by stressing with the hands.

Note #4: Rungs may have longitudinal cracks along ribbing, or they may have cracks around the crimping joining the end plates.

Note #5: Lock springs shall function to keep the hook in position to engage the rung.
Note #6: The pulley sheave shall revolve freely.

FIBERGLASS LADDER TERMS AND DEFINITIONS

TERMS	LADDER TYPE	DEFINITION
Chip	Fiberglass	Small piece of resin broken off an edge or surface.
Crack	Fiberglass	A separation of the laminate, visible on opposite surfaces, and extending through the thickness.
Open Crack	Fiberglass	See-through separation of material.
Surface Crack	Fiberglass	A line-type crack in the resin not penetrating the subsurface glass layer.
Crazing	Fiberglass	A pattern of fine hairline-type cracks on the surface or just below the resin surface with the appearance of a random spider web.
Delamination	Fiberglass	Separation of layers or strands of material exposing loose "white" glass fibers - when internal it could resemble a blister.
Flange	Fiberglass	Part of channel shaped fiberglass rail.
Fracture	Fiberglass	Rupture of the laminate surface without complete penetration to opposite side.
Gouge	Fiberglass	Deep groove penetrating the laminate and visible from the opposite side.
Open Gouge	Fiberglass	A see-through gouge.
Scratch	Fiberglass	A shallow groove in the resin surface not penetrating the subsurface glass layer.
Scuff	Fiberglass	A mark in the surface resin caused by rubbing or scraping.
Toe	Fiberglass	Narrow area at ends of channel adjacent to flange.
Weathering	Fiberglass	Erosion of the surface resin due to environmental exposure.
Web	Fiberglass	Wide section of channel between flanges.

Carrying Ladders

After the inspection has been completed, the ladder must then be carried to the location where the work is to be done.

Make sure you scan the route to the work location. This will ensure you identify "Unforeseen Hazards" along the route of travel that might include:

Unforeseen Hazards

- Uneven surfaces in the ground (holes, rocks).
- Slippery surfaces (dew, snow, water, leaves).
- Low hanging tree limbs that could catch in the ladder.
- Dogs and other animals that could create a problem.
- Obstacles that could make it difficult to move or place the ladder.

Ladder Carrying Techniques

There are three generally accepted methods of carrying a ladder. How you carry the ladder will depend on the circumstances; how far to the site, obstacles encountered in route.

It is best to carry the ladder long distances using the **Shoulder or D-ring carry**. This puts less stress on the body.

- **The Shoulder Carry.** The ladder is balanced on the shoulder and carried in a horizontal position to the work site.

- **The D-ring Carry**. The ladder is placed on the D-ring of the work belt and carried in a horizontal position.

The **Vertical Carry** should be used for ***short distances*** **only**.

- T**he Vertical Carry.** The ladder is carried vertically.

Placement of the Ladder

Three common locations where ladders will be used in performing telecommunications work will be reviewed in this section they include:

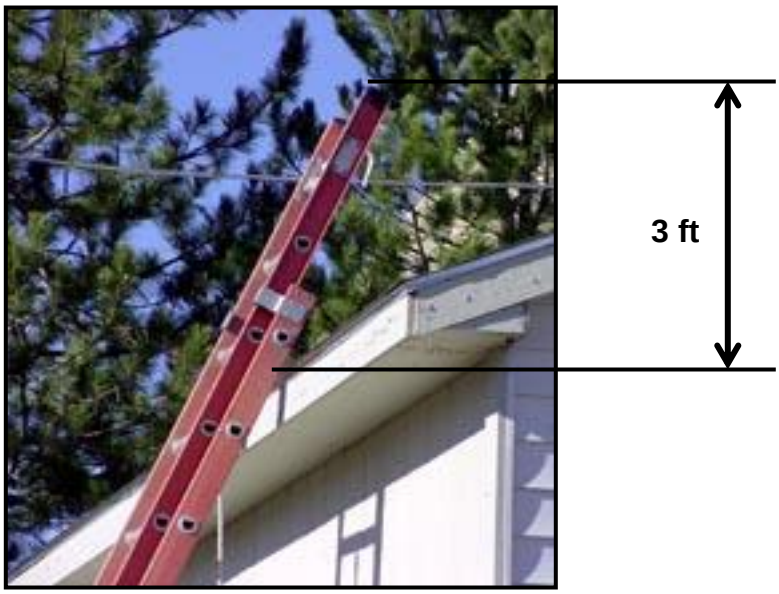
- On building walls for access to lock boxes, e.g., drilling locations and placement of cable under eves.
- On poles to gain access to taps/drops.
- On mid-spans to gain access to taps/drops.
- The hooks of the ladder must rest on the strand wire of the client, never the Telco or power company or other service provider.

Wall Placement of Extension Ladders

If the ladder extends higher than the roof, the ladder must extend at least 3 feet above the point the ladder is resting.

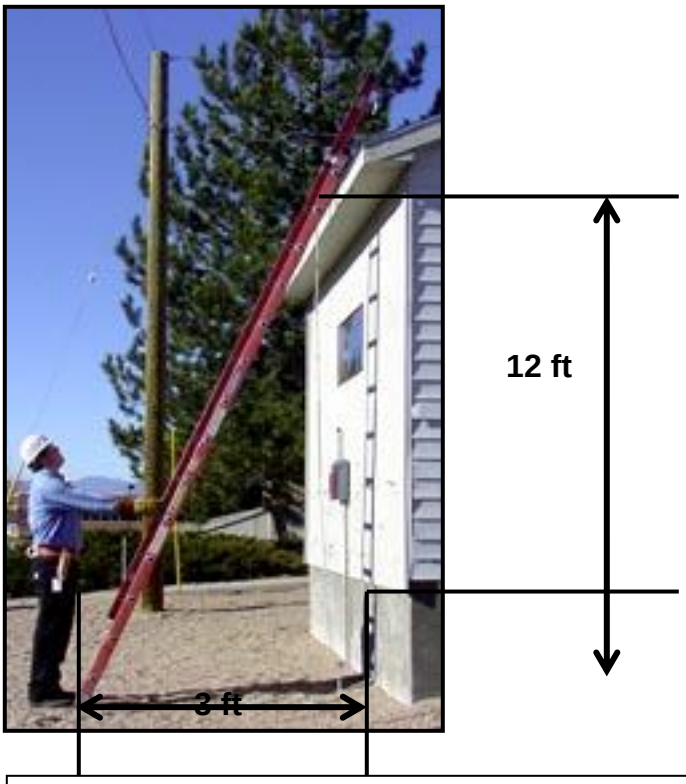
- The feet of the ladder must be properly used. Rubber for concrete and other hard surface pavements, or saw teeth feet for grass, gravel, dirt, snow, and ice.

- Extend ladder three (3) feet above the point it is resting at the roof level.



Wall Placement of Extension Ladder (continued)

- Ladders should be placed in a position where the horizon0tal distance from the top support to the foot of the ladder is 1/4 of the working length of the ladder. **(This is referred to as the 1/4 Rule)**
- This means that for every four feet you go vertically, the ladder should extend one foot horizontally. (See example below.)



The ladder is 12 feet vertical from the ground to the top support. Therefore, the base of the ladder is 3 feet out horizontally from the wall.

Pole Placement of Extension Ladders

- The 1/4 Rule also applies to the placement of ladders on poles. (For every 4 feet up, ladder should angle 1 foot out.)

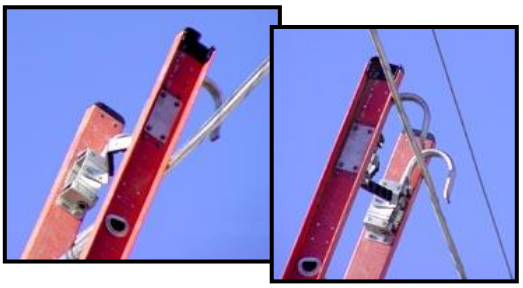
- A pole v-grip should be used on ladders to secure the ladder to the pole. If no v-grip is available, you should lash the ladder to the pole at the top.

V-Grip supported against pole to prevent turning.

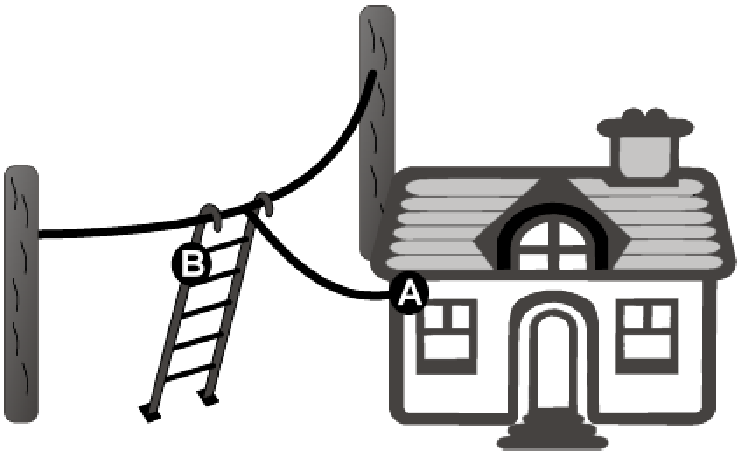
- Use proper feet placement (rubber feet for hard surfaces, teeth for sand, dirt, gravel, and ice).

Placement of Extension Ladder on Mid-span

- The 1/4 rule also applies to mid-span placement.
- Place strand hooks on or within one hook diameter above the strand.



- Make sure feet are properly set.
- Protect base of ladder from traffic or pedestrians.
- If you are replacing a drop, cut the drop at the house first.
- Position ladder so you are facing house where drop was disconnected.



(A) Disconnect drop from house first.

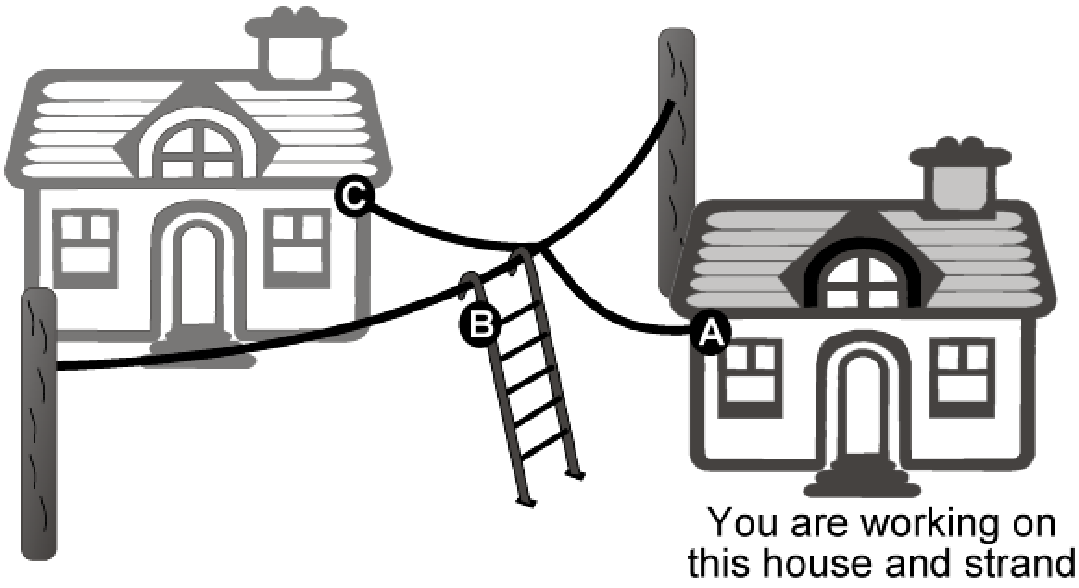
(B) Place ladder facing house where drop was disconnected.

Placement of Extension Ladder on Mid-span (continued)

Working on a mid-span with two opposing drops

Be aware of multiple drops connected to the tap. If you encounter this situation other precautions may be required such as:

- If another attached drop goes to a house opposite the one you are working on, you can disconnect it at the *other* customer's house or
- After disconnecting the one you are working on at the house, place the ladder towards the house with the opposite drop.



Procedures for Working on a mid-span with two opposing drops:

1) Disconnect drop from the house you are working on (A).
2) Place ladder on strand facing opposite house (C)
3) Place new drop at tap (B), then to house.

The goal is to eliminate tension on the strand that can cause you to be flung from the ladder.

IMPORTANT: This procedure is an exception to the NORMAL method of how you place the ladder. If there is only one drop on the tap, and it is the one you are working on, make sure you disconnect at the house first and then place the ladder towards the house you are working on!

Climbing Ladders

Make sure ladder rungs are free from mud, grease and other debris that can cause slips.

Climb with hands on outer rails. This ensures a three point contact is maintained.

A three point contact means two hands and one foot on ladder at all times.

Do not carry anything in your hands when climbing the ladder.

Do not climb above the third rung from the top (see manufacturer's recommendation on ladders)

If you must carry coax or other cable, make sure it does not create a trip hazard and make sure it is attached to your body so it will release should it be caught or pulled. Do not carry in hands.

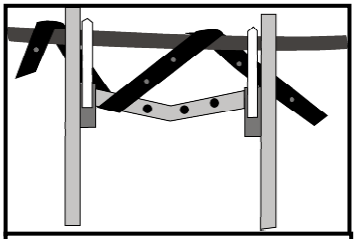
Working at Elevation

When you have reached the work space, there are specific things you need to do depending on the type of structure you are working on. Basic rules for all work is:

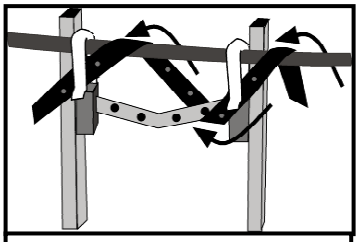
- Do not extend your body outside the rails of the ladder. Keep your sternum within the rails. Don't Lean out! If you can't reach the work, descend, and re-position the ladder.
- It is company policy that all employees wear and use their PPE whenever using the ladder to access the tap, pole, strand, lockbox, mid-span point or side of a fixed structure. Disciplinary action up to and including termination will result for non-compliance.
- A fiberglass extension ladder or bucket-truck are the only acceptable means of reaching elevated working areas. CLIMBING THE PEGS OF THE UTILITY POLE OR "GAFFING" IS NOT AUTHORIZED AT ANY TIME.

On a mid-span, you must secure yourself to the ladder and the strand (1-1-1)!

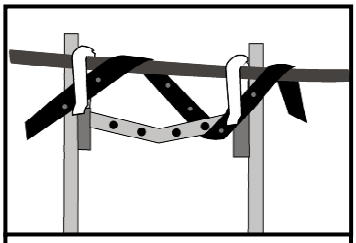
- 1-1-1 Method is accomplished by using your pole strap. With one end connected to a D-ring, pass the free end of the positioning strap outside the rail, under the strand, up between the rails, wrap around strand and rung, back over strand and down to outside of rail, connect to D-ring.



1-1-1 Method Front View



1-1-1 Method Back View

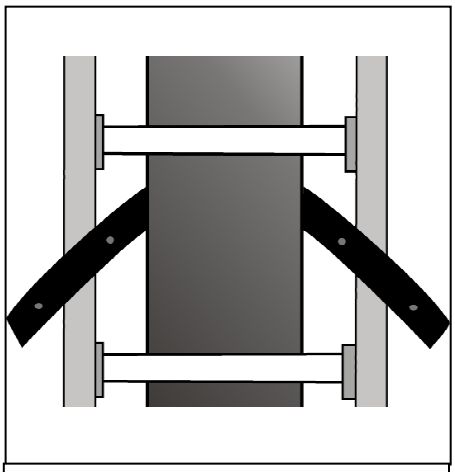


1-1-1 Method Back View

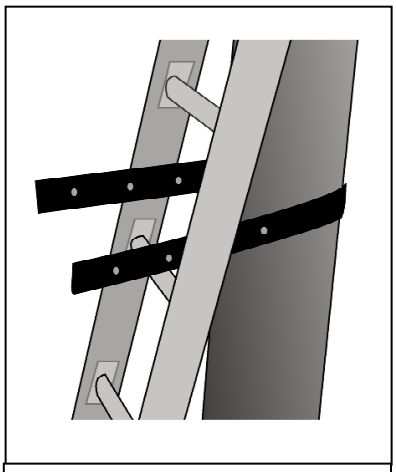
Working at Elevation *(continued)*

When you are working **on a pole,** the following method of securing yourself to the pole should be followed:

- If possible use your pole strap and belt off above the strand
- Pass the free end of the strap inside the ladder side rail.
- Pass around the back of the pole.
- Bring the free end of the strap through the inside of the opposite side rail and snap to D-ring.



Securing to a pole, front view



Securing to a pole, side view

NOTE:

Do not belt on to a ladder that is not tied off to a secure support. A ladder resting against a building wall is usually not secured to the building.

Other Ladder Handling Concerns

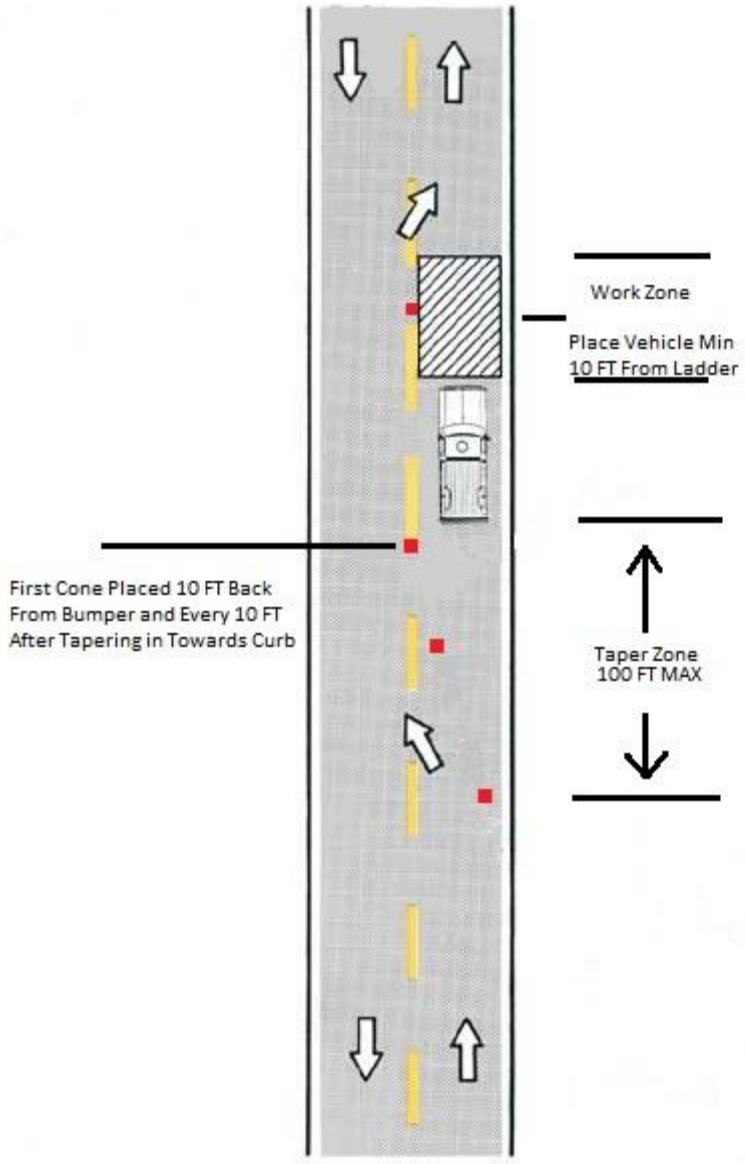
- Falls are not the only injury that can occur from handling ladders. We discussed earlier the need to properly unload and carry the ladder. Failure to do this correctly can result in strains and sprains.
- When raising and lowering the fly section of an extension ladder, be aware where your hands and feet are at all times.
- Raise and lower the fly section three rungs at a time. This will help prevent finger and foot injuries.
- Keep hand on rails, not rungs during raising and lowering operations.
- Keep feet off of rungs when lowering. If the rope slips and your foot is on a rung, it can be seriously injured.

Job Site Set-Up

1. At the job site, park your vehicle between the ladder location and oncoming traffic when working in the street. Park vehicle minimum 10 ft. back from ladder with wheels turned toward curb. Place cones as directed. (See figure below)
2. The traffic control procedure shown is appropriate only for low-volume, low-speed facilities, such as local residential streets. With few exceptions, this procedure is not to be used in rural areas.
3. Traffic can regulate itself when volumes are low and the length of the work space is short, thus enabling drivers to readily see the roadway beyond.
4. Flashing warning lights and/or flags may be used to call attention to the advance warning signs.
5. Survey the area before you climb.
6. Be aware of your environment before you climb.
7. Check for overhead obstacles before extending the ladder.
8. Place ladder on firm, level surface.
9. Secure safety belt before beginning any work.
10. Avoid Placement of ladder on street side subject to vehicle movement.

See next page for diagram.

How your job area should be set up for ladder work.



Summary/Conclusion

- Falls are the number two cause of accidental death in the United States.
- Falls from ladders in our industry are a very serious problem and result in serious injuries and deaths.
- Follow proper work procedures to reduce the potential of you becoming a FALL statistic!

Ladder Safety Signoff

I, _____, hereby acknowledge the receipt of Connect/One's Standard Ladder Practices and Working with Ladders orientation.

I have read, understand and agree to abide by the program and all policies and standards related to the Ladder Safety program. I understand that if I fail to follow the Ladder Safety program, I will be subject to disciplinary action up to and including termination of employment.

Signed: _____

Date: _____