

APPENDIX A

S A F E T Y R U L E S

for 6-17-A and B

ACCIDENT PREVENTION, EDUCATION, FIRST AID

AND

SAFE PRACTICE PROCEDURE

COMPILED BY

JOINT SAFETY COMMITTEE CONSISTING OF MEMBERS OF LOCAL UNION 17, INTERNATIONAL  
BROTHERHOOD OF ELECTRICAL WORKERS

AND

LINE CONTRACTORS REPRESENTING THE AMERICAN LINE BUILDERS CHAPTER, NATIONAL ELECTRICAL  
CONTRACTORS ASSOCIATION

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# S A F E T Y   R U L E S

## PREAMBLE

These Rules have been drawn up by the Joint Committee for Safety. They contain only the basic rules for general operation on overhead lines and substation maintenance, construction and operation.

The prevention of accidents to himself, to his fellow workers and to the public is a responsibility which every man must accept as soon as he enters into the employment of any company.

These Rules have been made in the interest of the safety of all electrical workers and the public. By cooperating in the enforcement of and obedience to these Rules, employees and the public will be better protected and the operation of all companies made safe.

Each employee shall be provided with a copy of "Safety Rules." He shall carefully study and observe these Rules. These Rules shall be strictly enforced and ignorance thereof will not be accepted as an excuse for their violation.

Suggestions for changes in the Rules to promote safety are invited from all electrical workmen.

It is the responsibility of the Employer to see that all Safety Rules are enforced.

These safety rules are the minimum requirements Employees are to follow these rules except when the employer's safety rules or state and federal rules are more stringent then the more stringent rule shall be followed.

## SECTION I

### INTOXICATING BEVERAGES

Rule 1.01 Intoxicating liquors or illegal drugs shall not be allowed on the job nor shall any workmen under the influence of liquor be allowed on the job. Any illegal drugs or intoxicating liquors will not be transported by company vehicles.

## SECTION II

### REPORTING INJURIES

Rule 2.01 Any employee injured on the job must report the injury, including first aid cases, at once to his immediate supervisor.

Rule 2.02 The Employer will notify the Local Union, by telephone, as soon as possible whenever a fatal accident or other serious injury occurs and follow-up with a written report.

## SECTION III

### REPORTING HAZARDS

Rule 3.01 Any and every employee shall report in writing to his immediate superior any dangerous or defective equipment and any hazardous condition and the superior

shall immediately investigate the reported condition. If the investigation reveals a hazardous or dangerous condition, he shall take the necessary steps to correct such condition.

#### SECTION IV

##### SAFETY MEETINGS

Rule 4.01 In order to promote and encourage safety, a minimum of one hour per month will be devoted to conducting safety meetings in accordance with the agreement.

Rule 4.02 The Employer shall have available safety topics for discussion at such meetings.

#### SECTION V

##### USE AND INSPECTION OF TOOLS

Rule 5.01 Employers shall insist that all men under their supervision keep their belts, spurs and straps in good condition. All personal tools and equipment shall be of standard acceptable design produced by a reliable manufacturer.

Rule 5.02 Body belts shall have no exposed metal parts next to the body, and conform to all ANSI, MIOSHA and OSHA standards.

Rule 5.03 Linemen's belts shall be used for no other purpose than that for which they are intended.

Rule 5.04 Body and safety belts shall be inspected periodically for condition of leather near the holes, rivets, stitches, buckles, D rings and snaps. Tools condemned as a result of this inspection shall be replaced.

Rule 5.05 The use of pads is recommended on climbers.

Rule 5.06 The gaffs of climbers shall be properly maintained. When climber gaffs are less than 1 1/8" in length, they shall be replaced.

Rule 5.07 When climbers are not in use, they should be stored in the proper place on the truck.

Rule 5.08 Climbers shall not be worn when linemen are riding in trucks, piking poles or are on the ground for a great length of time.

Rule 5.09 Defective or condemned tools and equipment shall not be carried on the job or on the truck.

Rule 5.10 All tools not carried in the lineman's belt, small equipment and material shall be raised and lowered from elevated positions in a tool bag and/or hand line. The tool bag must be inspected to see that it contains no broken glass, porcelain or loose, sharp objects on which workmen might cut their hands or rubber gloves.

Rule 5.11 Workmen shall at all times use safety belts when engaged in handling wires or apparatus on any pole, tower or structure.

Rule 5.12 Safety belts shall not be put around the pole any higher than 12 inches from the top. Neither end of the belt shall be allowed to hang loose, either in climbing or descending poles, tower or structures. Both ends are to be attached to the "D" rings.

Rule 5.13 Mechanical jumpers, except those made expressly for a one job operation, shall be of such kind that the connections between the jumper heads and the jumper will be of the compression type. Employees before use must visually inspect Mechanical Jumpers

Rule 5.14 Chairs used to ride spans shall be of an acceptable design and well constructed.

Rule 5.15 Eyes in winch lines, cables and slings shall either be manufactured; field braided by competent personnel or secured with crosby clamps and moused. They shall receive close inspection for signs of deterioration.

Rule 5.16 Hand lines must be used for all work on poles, from an aerial bucket or platform.

## SECTION VI

### RUBBER PROTECTIVE EQUIPMENT

Rule 6.01 The Employer shall furnish rubber gloves, protectors, protective shields, blankets and approved safety devices and proper facilities for carrying same in accordance with safe operating procedure. Rubber protective equipment shall be kept in a dry compartment where no other tools are stored when not in use.

Rule 6.02 No protective equipment shall be patched or vulcanized.

Rule 6.03 Do not use artificial heat to dry rubber protective equipment except by factory approved methods.

Rule 6.04 Rubber blankets shall not be folded for storage. They may be stored either rolled or flat.

Rule 6.05 The insulated protective covering on mechanical jumpers is not to be considered as adequate protection in lieu of proper rubber protective equipment.

Rule 6.06 Rubber gloves and sleeves must be kept in a glove bag when not in use.

Rule 6.07 All rubber gloves for use on voltage over 500 volts shall be of the volts class 2 or higher and shall be given an air test before being used and shall never be worn inside out.

Section 6.08 When working under the 17-C Agreement all rubber gloves shall be tested before first issue and every 6 months thereafter. Rubber sleeves shall also be tested before first use and then every 12 months thereafter. If the gloves and sleeves has been electrically tested but not issued for service, it may not be placed into service unless it has been electrically tested within the previous 12 months.

Rule 6.09 Leather protector gloves shall always be worn over rubber gloves and shall be maintained in good condition. Glove protectors shall be worn with rubber gloves only and at no time shall they be used for any other purpose.

Rule 6.10 No rubber goods shall be dropped from poles. Rubber protective equipment shall not be allowed to contact oil or grease.

Rule 6.11 Employees shall be held responsible to see that all rubber gloves are given air test each day before being used.

Rule 6.12 The contractor will replace all gloves every 90 days, and sleeves every 120 days, and 180 days on the blankets from the time of issue.

## SECTION VII

### LIVE-LINE TOOLS

Rule 7.01 "Hot Sticks" shall be inspected regularly. "Hot Sticks" shall be stored in a safe dry compartment. Hot sticks shall be dielectrically tested on a yearly basis.

Rule 7.02 Workmen must at all time use extreme care in transporting and using live-line tools so as not to damage them.

Rule 7.03 An approved type of rope shall be used when working energized high tension conductors or equipment.

Rule 7.04 When a baker board is used in conjunction with live-line tools, this board shall be mounted on the pole a minimum of ten feet below the nearest object to be worked on.

## SECTION VIII

### EXPLOSIVES

Rule 8.01 If explosives are to be used, you will need to follow all state and federal regulations.

## SECTION IX

### POLES

Rule 9.01 Before climbing a pole, particularly an old pole, a thorough inspection of the physical condition of the pole must be made.

Rule 9.02 Before working on a pole in bad condition or a condemned pole, it must be adequately guyed and pike poles must be used to support the pole while it is being guyed. When pike poles are used, cant hooks shall be used to protect the man against the pole turning.

Rule 9.03 When an old pole is being replaced by a new pole, linemen should always work from the new pole if possible. The pole tops and bottoms should be lashed together, if possible, before stripping the old pole or transferring wires. The top lashing should be at a point as near the top of the old pole as conditions permit.

Rule 9.04 When setting poles in or near energized lines and equipment of 500 volts or less, protective equipment and/or rubber gloves shall be used by the workmen.

Rule 9.05 When setting poles in excess of 500 volts in and or near energized lines, protective equipment and/or rubber gloves and sleeves shall be used by workman.

Rule 9.06 Clearance poles, where used to protect dangerous crossing, must be set to standard depth for height of pole.

Rule 9.07 There shall be no attachments placed on poles except those which are authorized by the Utilities involved. Nails and unauthorized attachments should be removed before climbing above such attachments.

## SECTION X

### LADDERS

Rule 10.01 When a ladder is to be used, the workman shall make sure that it is sufficiently strong for the use intended.

Rule 10.02 Never place, or leave standing, ladders in such a way that they might fall over.

Rule 10.03 Always face a ladder when climbing or descending.

Rule 10.04 Don't attempt to carry tools or material up or down a ladder if it interferes with the free use of both hands.

Rule 10.05 Ladders must not be set up in streets, alleys, sidewalks or in industrial plants and in other places where the public or workmen are apt to run into them, unless there is a man stationed at the foot to hold the ladder and guard traffic.

Rule 10.06 When working on a ladder, workmen shall, whenever possible, tie the top of the ladder to a substantial object to prevent falling.

Rule 10.07 Metal ladders or ladders with vertical metal reinforcing are prohibited for use on energized electrical work except when metal running strips are needed for grounding linemen to the structures and thus avoiding static shock on extremely high voltage live-line work.

Rule 10.08 Ladders shall not be painted.

Rule 10.09 Ladders shall be equipped with safety shoes or metal spikes or spurs, and hook ladders shall have safety chains on each hook of ladder.

Rule 10.10 When working on a portable ladder, it shall be held by another workman until ladder is tied to a substantial object to prevent falling.

Rule 10.11 Side member guys on aerial ladders shall be adequately insulated.

## SECTION XI

### AERIAL BASKET AND LADDER EQUIPMENT

Rule 11.01 Employees shall comply with Section 12 of these Safety Rules (WORKING ON ENERGIZED PRIMARY CIRCUITS) while working from baskets and ladders.

Rule 11.02 The operating and maintenance instruction manuals issued by the manufacturer shall be followed.

Rule 11.03 All bucket trucks on the property shall have an insulated section in the boom. Buckets being used on energized work shall have upper and lower controls. Bucket trucks, liner, and insulated platform shall be electrically tested every 6 months.

Rule 11.04 The truck shall not be moved unless the boom is lowered and the basket or ladder is cradled.

Rule 11.05 Riding in the basket or on the ladder while truck is traveling between locations shall not be permitted. Men may ride in the basket for short moves at the work location if the basket is returned to the cradled position for each move.

Rule 11.06 All ropes or hand lines shall be coiled within basket while basket is being elevated.

Rule 11.07 While the basket is in operation, a qualified employee shall be present to operate the ground boom controls if the need arises. Except with a two man B crew and an "L" crew.

Rule 11.08 Employees shall not stand or sit on top or edge of the basket. Employee's feet shall be on the floor of the basket the entire time he is in it.

Rule 11.09 Approved fall protection must be worn and methods will conform to ANSI, MIOSHA, and OSHA standards.

Rule 11.10 An employee shall not enter or leave the basket by walking the boom.

Rule 11.11 When two men are in the basket or baskets, one of them shall be designated to operate the controls. One employee shall give all signals, which shall be thoroughly understood by all persons concerned.

Rule 11.12 Baskets should be located under or to the side of conductors or equipment being worked. Raising the basket directly above energized primary conductors or equipment should be kept to a minimum.

Rule 11.13 Only approved attachments shall be allowed on baskets.

Rule 11.14 When two employees are working from the basket, extreme care shall be taken to avoid one man contacting poles, cross arms or other grounded or live equipment while the second employee is working on energized equipment.

Rule 11.15 Contact between the cage, boom or ladder and energized equipment shall be studiously avoided unless the energized equipment is covered with protective devices.

## SECTION XII

### WORKING ON ENERGIZED PRIMARY CIRCUITS

Rule 12.01 Only workmen in the proper classification and so authorized shall work on energized primary wires or equipment, and work shall always be done with the full use of suitable protective devices and observance of the Safety Rules.

Rule 12.02 When work to be performed on energized primary wires requires workmen to reach past other wires to reach the ones to be worked upon, all wires between themselves and the wires to be worked upon shall be covered with approved rubber protective equipment. The protective equipment shall not be removed until the work is completed.

Rule 12.03 All wires, including neutrals and guy wires, in the vicinity of energized primary work must also be covered with protective equipment and, if possible, covered first.

Rule 12.04 All work on energized conductors at 7.6kv phase to ground shall be done with class 2 gloves and sleeves from insulated aerial baskets. Gloving of 7.6kv phase to ground shall be done on a volunteer basis. All other work shall be done with live line tools (Hot Sticks).

Rule 12.05 All hot-sticking of energized sub transmission voltages shall be preformed with no less the three qualified journeyman lineman.

Rule 12.06 Rubber gloves and sleeves shall be worn:

1. When applying or removing protective equipment on energized primary circuits.
2. When working on or near energized primary equipment including, system neutrals and pole grounds\_or standing within reach of another workman doing this kind of work.
3. When tending reels or handling conductor which is being installed or removed close to, in or over energized lines or equipment.
4. Rubber Sleeves shall be worn on the inside of the Rubber gloves.
5. It is not necessary to wear rubber gloves while working with live-line tools; however, nothing in these Rules shall be interpreted as preventing a workman from wearing rubber gloves at any time he feels the extra protection to be desirable or at the discretion of the foreman.

Rule 12.07 All trucks engaged on work on energized lines shall be tooled with proper equipment for lowering men from poles in case of accident.

Rule 12.08 Watchmen must be stationed so as to help avoid accidents when stringing wire where pedestrians or passing vehicles may be endangered.

Rule 12.09 At no time shall any crew run wire through or over energized lines unless proper safety measures have been taken (such as rubber protective equipment and/or guard poles for low tension and guard poles for high tension).It is recommended that all wire installed in the proximity of energized conductors or equipment be installed under tension whenever practical. Dry rope shall be provided and must be used on the lead end of conductors being so strung.

Rule 12.10 Reels will be attended while crew is engaged in installing conductor close to, in or over lines energized.

Rule 12.11 Journeymen shall not be permitted to work on energized lines exceeding 500 volts, unless accompanied by another journeyman lineman or at least a third step apprentice.

Rule 12.12 All Apprentices may perform work in company with a journeyman on energized secondary circuits of not more than 500 volts. Apprentices in their fourth step of training or over may perform work assisting a journeyman on all classes of work.

Rule 12.13 Men working on energized circuits shall avoid standing on or otherwise being in contact with transformer cases, grounded guy wires, metal brackets, unprotected pole grounds or telephone messenger cables. If congested working space makes this impossible, all such equipment shall be covered with protective devices.

Rule 12.14 The Employers shall furnish FR helmet liners (head warmers) for hard hats for employees' use in cold weather and sweatbands for summer use.

Rule 12.15 Safety glasses with side shields will be worn that meet ANSI safety standards, which will be furnished by the employer.



Rule 12.16 A shirt or jump suit with full length sleeves rolled down will be worn when climbing. When working on or near energized equipment, such clothing shall not have metal zippers; and unnecessary metal jewelry of any kind shall not be worn. Employees are required to furnish and wear Class II FR Clothing while on the clock. All employees must maintain their FR Clothing to meet the OSHA Standards.

Rule 12.17 In no case when linemen are working in pairs on the same pole shall they work simultaneously on energized wire or equipment of different phases or polarities.

Rule 12.18 Tree limbs or branches in contact with energized equipment must be considered as energized at the voltage contacted and handled in accordance with these Safety Rules.

Rule 12.19 A workman shall protect his climbing and working space at all times if the conductors are so spaced that in climbing or working he will, or is liable to, come in contact with any energized line.

Rule 12.20 All lines shall be considered energized and work performed on them will be done under the Rules of this Section unless grounds have been installed under the provisions of Section 16 (GROUNDING).

Rule 12.21 When working on capacitors, the capacitor must be de-energized, discharged and grounded.

Rule 12.22 Hot stick shall be used for opening, closing, removing or replacing fuses or fuse doors on cut-outs.

Rule 12.23 Shotguns shall be used to install and remove arressor taps.

Rule 12.24 Rubber Gloves shall be worn by all, for all secondary work.

UNSWITCHED CAPACITOR:

- Step 1. Remove fuses, then wait at least five minutes before contacting any of the equipment connected to the capacitor.
- Step 2. Short terminals of capacitor several times or until no discharge is heard.
- Step 3. Short terminals to capacitor frame several times or until no discharge is heard. The capacitor may now be disconnected.

SWITCHED CAPACITOR:

- Step 1. Remove time switch from the time switch socket.
- Step 2. Place weatherproof socket jumper, with 15 ampere fuse installed across the upper left and lower left terminals of the time switch socket, to open the oil switch.
- Step 3. Test primary trainers between fuse carriers and oil switch for amperage. If no amperage is indicated, proceed to Step 4.
  - (a) If amperage is indicated on any trainers, this indicates a defect in the switch or switches; attempt to open the switch manually by operating lever arm on switch. Test again; if no amperage is indicated, proceed to Step 4.

- (b) If amperage is still indicated, install portable load breaker disconnects across the fuse carrier, remove the fuse, then break the load with the disconnects.

Step 4. Remove primary fuses.

Step 5. Wait five minutes, then discharge the capacitor the same as unswitched capacitors.

### SECTION XIII

#### UNDERGROUND DISTRIBUTION

##### INTRODUCTION

Rule 13.01 UD, Underground Distribution, is a general term which covers the necessary facilities to furnish underground service generally to residential and commercial type customers.

Rule 13.02 The safe practices, as outlined, are written on a "SHALL" or "should" basis and SHALL be observed in the same manner as the rules in the Safety Manual.

Rule 13.03 Due to the close clearances and the construction of UD equipment, the required necessary safe practices go beyond the provisions of the Safety Manual which deals with work on energized lines and equipment. Care must be exercised to insure that all supervisors and their employees are aware of this and are instructed in the proper procedures.

##### DEFINITIONS

Rule 13.04 Pad-Mount - Equipment or device - surface mounted - normally worked from ground level.

Rule 13.05 Primary Compartment - A compartment containing voltages above 500 volts.

Rule 13.06 Secondary Compartment - A compartment containing voltages below 500 volts.

Rule 13.07 URD Concentric Cable - A conductor insulated and shielded for operation above 500 volts around which is wound a neutral of equal capacity, with no over-all covering.

Rule 13.08 Power Cable - A conductor insulated and normally shielded around which is an outer jacket, for operation above 500 volts.

Rule 13.09 Secondary Cable - A conductor insulated for operation below 500 volts.

Rule 13.10 Termination - The ends of a concentric or power cable, such as:

1. Pothead - A termination, normally outdoor.
2. Stress cone - A termination, normally indoor.
3. Elbow - A fully shielded (also submersible) termination, may be used indoor or outdoor.

Rule 13.11 Exposed - A device or conductor is exposed unless it is properly insulated or covered, with approved protective equipment.

NOTE: 5000 volt and above non-shielded insulated cable is exposed and SHALL be covered with approved protective equipment.

Rule 13.12 Subsurface - Equipment or device below ground, normally worked from ground level.

Rule 13.13 Subway - Equipment or device below ground, normally worked below ground level.

Rule 13.14 Fault Closing Devices - A device capable of being closed into a faulted cable or transformer. The device SHALL meet the requirements of the client.

#### WORKING ON UD SYSTEMS

##### UD #1 - GENERAL RULES

Rule 13.15 The employee in charge of the work SHALL review with crew members the location of all energized apparatus and cable terminals in the work area.

Rule 13.16 Rubber gloves SHALL be worn when opening any pad-mounted enclosures.

Rule 13.17 Rubber gloves and approved hot line tools SHALL be used when operating any underground device normally energized above 500 volts and is exposed, including fuses, elbows and any disconnecting devices.

Rule 13.18 Rubber gloves SHALL be worn and approved hot line tools SHALL be used to perform discharged and grounding operations.

Rule 13.19 When work is to be performed on a de-energized cable in a primary compartment, all exposed energized equipment in that compartment SHALL be covered with approved protective equipment.

Rule 13.20 Never under any circumstances should the system neutral conductor be opened.

##### UD #2 - WORKING WITHIN PAD-MOUNTED ENCLOSURES

Rule 13.21 Rubber gloves SHALL be worn when working in pad-mounted enclosures on energized equipment and secondary pedestals.

Rule 13.22 Approved protective equipment SHALL be used on all exposed terminals energized at 500 volts or less, when working on adjacent terminals energized at 500 volts or less.

Rule 13.23 Before performing work on a de-energized secondary terminal of a pad-mounted transformer, the terminals SHALL be tested and grounded.

Rule 13.24 All doors to pad-mounted enclosures SHALL be removed or firmly secured while work is being performed.

Rule 13.25 The oil compartment cover plate on transformers SHALL NOT be removed.

##### UD #3 - WORKING ON PRIMARY CABLES AND GROUNDINGS

Rule 13.26 Before any work is performed on a high voltage cable requiring that the cable be disconnected, but ungrounded, it SHALL be properly drained of all static charge as follows:

- A. Properly clear cable from all possible sources of electrical supply.
- B. Check the terminals for normal voltage with the use of an approved potential detector device.
- C. Ground the cable by approved hot line methods to a solid ground for not less than two minutes, then remove ground and proceed with work.
- D. Work involving the testing by AC or DC above normal service voltage, retention of charge may be longer than two minutes and may be re-established after being grounded. Therefore, cable SHALL be checked as in "B" and "C" above, until it is determined that no charge is re-established.

Rule 13.27 All cables SHALL be considered as energized until each has been properly tested to be de-energized and discharged and properly grounded. Protection shall be provided by an authorized agent in accordance with red tag procedures of the Electrical System Department.

Rule 13.28 Before beginning work on a cable which is de-energized, the cable SHALL be grounded at the cable terminations on both sides and as close as possible where the work is to be performed.

Rule 13.29 The grounding device SHALL be connected to ground before being connected to the cable. When removing the grounding devices, they SHALL be disconnected from the cable before the ground connections are removed.

#### UD #4 - OPERATING UD SWITCHES AND FUSES

Rule 13.30 Due to loop characteristics of UD circuits, disconnect blades or fuses SHALL be considered energized when in the open position until tested and grounded.

Rule 13.31 Cable faults SHALL be sectionalized only by use of a pole-mounted switch, a pole-mounted fuse cutout or an approved fault closing device.

Rule 13.32 When energizing a section of cable, a pole-mounted switch or a pole-mounted fused cutout or an approved fault closing device SHALL be used.

Rule 13.33 Switches and fuses in pad-mounted equipment SHALL NOT be used to pick up load unless they are rated as load make devices.

Rule 13.34 Switches and fuses used in pad-mounted equipment to interrupt load SHALL be rated as load break devices.

#### UD #5 - PROTECTING THE PUBLIC

Rule 13.35 Accessible, energized compartments of UD installations SHALL be closed and locked at all times except when opened for inspection, maintenance use or other authorized purposes.

Rule 13.36 If it should be necessary to leave an energized compartment unattended for even a short period, the compartment SHALL be closed and locked.

Rule 13.37 An employee SHALL keep unauthorized persons away from the work area: by company attendant(s), approved barricades, safety markers or a combination of these.

#### UD #6 - MANHOLES AND VAULTS

Rule 13.38 Workmen should not work in manholes exposed to traffic without another person on the surface to watch traffic and to be available to assist the workmen so engaged and in case of an accident

Rule 13.39 When working in manholes, a guard of sufficient height must be placed completely around the entrance to prevent anyone from falling into the manhole.

Rule 13.40 No workman shall enter a manhole or vault until he has assured himself that there are no explosive gases present. Tests shall be made with suitable devices manufactured for this purpose. No workman shall smoke or bring open flame or torches near open manholes until he is sure that there is no trace of gas present. When gas or fumes from welding or pouring molds or coating pipe is present, an adequate exhaust fan shall be provided. All workers in manholes shall have confined space training.

#### SECTION XIV

##### SCAFFOLDS

Rule 14.01 Scaffolds shall be constructed to conform to the OSHA requirements covering scaffold construction.

#### SECTION XV

Rule 15.01 Excavations, trenching and shoring shall meet all requirements set forth in the OSHA standards.

#### SECTION XVI

##### GROUNDING

Rule 16.01 after a clearance has been secured on a circuit or piece of apparatus, the workman in charge shall see that the line is tested, before placing proper grounding cables for the protection of his men. The grounding cables or sets shall be of such type that a positive connection will, under all conditions, be maintained between the ground and all phase wires. In a case of emergency, or where grounds are required for an indefinite period, a positive connection may be made with wire, bare or insulated, with approved connectors or clamps. These grounding cables should be placed on either side of the point of work and at other points where it is deemed advisable. Such grounding devices shall be placed or removed by the use of live-line tools. The grounds shall be connected at the ground connection first and secondly on the phase or apparatus to be grounded. The workman in charge of crews working on transmission circuits or apparatus must not depend upon station switches for protection, but must always provide proper protective grounds. All protective grounds shall be a minimum of #2 copper.

Rule 16.02 The foreman or workman in charge, upon completion of his work, after assuring himself that all men under his supervision are clear, shall direct the removal of all protective grounds placed by him and report to the person from whom he received the clearance.

Rule 16.03 When work is to be performed on circuit apparatus or equipment classified as high tension, they shall first be de-energized, tested, and grounded in accordance with safety regulations or shall be worked with conventional hot line tools.

## SECTION XVII

### VEHICLES

Rule 17.01 No operator of an Employer's vehicle shall use, or be under the influence of, any alcoholic beverages or illegal drugs while on duty.

Rule 17.02 Employees shall familiarize themselves with and obey the motor vehicle laws of the city, county and state. They will be held PERSONALLY RESPONSIBLE for all traffic law violations.

Rule 17.03 Driver is responsible for DOT pre- and -post trip vehicle inspection.

Rule 17.04 No motor vehicle used on the work shall be driven at excessive speeds or in a careless or reckless manner. Road and traffic conditions shall be taken into consideration in determining a safe speed.

Rule 17.05 The privilege of operating Employer-owned vehicles may be withdrawn if the operator continues to abuse such privileges by careless or unlawful practices.

Rule 17.06 Men shall only ride within the body of trucks for safety measures.

Rule 17.07 Drivers of vehicles transporting men must stop at unguarded railroad crossings.

Rule 17.08 Drivers shall comply with all DOT requirements.

## SECTION XVIII

### PRECAUTIONS

Rule 18.01 All foremen, before starting work, shall make certain that the men understand the purpose of each job with special emphasis on voltages and clearances. A job briefing shall be held daily and whenever hazards change. It is recommended that these meetings be documented.

Rule 18.02 Employees shall not work directly beneath men working overhead.

Rule 18.03 Tools and material must not be thrown from the ground to a workman aloft. Workmen must never drop tools and material from aloft to the ground. When not in use, tools and material shall be kept in their proper place.

Rule 18.04 Every employee assigned to work must remember that while on duty he is engaged in work which is perfectly safe when all precautions are taken, but which becomes dangerous through carelessness, chance-taking, and "horse-play." "Horse-play" shall never be allowed.

Rule 18.05 Employees must wear suitable clothing for their work. Ragged sleeves, loose ties and other parts of clothing that can be caught in machinery shall not be worn. All workmen should wear good, sturdy work shoes. Safety shoes are recommended. On the upper body a minimum of a pocket "T" shirt must be worn. Employees must not wear short pants in the field.

Rule 18.06 Crews working at night shall be furnished adequate lighting.

Rule 18.07 Good housekeeping in the workshop, whether it be a garage, storeroom, line truck, plant or yard, is essential to safe and efficient work. Where materials are not carefully arranged or there is accumulated rubbish, stumbling and falling accidents are bound to occur. Tools properly arranged help prevent loss.

Rule 18.08 When jobs are to be done which present unusual hazards, the foreman and workmen shall discuss the problem and arrive at a method in which their judgment will provide the greatest degree of safety.

Rule 18.09 In coming down a pole, a lineman shall always use his climbers. He shall not "drop", "jump" or "coast."

Rule 18.10 The foreman shall give all signals or designate one workman to give them.

Rule 18.11 Workmen shall stay out of the angle or hospital side of any line under tension (ropes, winch lines, conductors, etc.).

Rule 18.12 Steel tapes shall not be used in areas near energized lines. Fabric tapes with metal strands shall not be permitted on the job.

Rule 18.13 Hoists with metal chains or any steel winch lines shall not be used on energized wires. When hot hoists are used rubber gloves and sleeves may be worn.

Rule 18.14 After a capacitor has been disconnected from its source of supply; workmen shall wait five minutes before short circuiting and/or grounding it. Workmen shall take great care not to come in contact with the terminals, jumpers or live wires connected directly to the capacitor until it has been properly short circuited and/or grounded.

Rule 18.15 The truck driver or operator should not leave the winch controls while the winch is in use. The winch also should not be operated without prearranged signals and a signal man in plain view or the winch operator.

Rule 18.16 Foreman shall see that "all road" signs are placed properly at a proper distance at front and rear of vehicle or work areas located along any roadway or whenever necessary.

Rule 18.17 Use of personal cell phones shall be limited to breaks and lunch periods only.

## SECTION XIX

### FIRST AID

Rule 19.01 First aid is the immediate temporary treatment given in case of injury or sudden illness before the services of a physician can be secured.

Rule 19.02 The duty of the first aider ends where the physician's begins, and there should be no clash of interest between the physician and the first aider.

Rule 19.03 First aid kits shall be furnished on all trucks and such kits will be kept adequately stocked.

Rule 19.04 It is recommended that all employees shall be CPR and first aid certified.

ARTICLE XX

BARE HAND WORK

GENERAL WORK RULES

Section 20.1

1. One barehanded certified lineman shall be in charge.
2. The Minimum barehand crew shall consist of three barehand qualified linemen, one of which shall be the designated safety watch.
3. a. Written procedures (approved by a barehand certified foreman or supervisor) must be provided to the crew prior to initiation of work for each different type of barehand procedure or situation.  
  
b. Written procedures should not be changed while the work is in progress. If due to unforeseen circumstances a minor change is required in procedures, the job shall be halted, and only through consultation of the whole crew, insuring that everyone fully understands the required change, work may proceed. If a substantial change is contemplated, the supervisor or foreman must be consulted, and approve of such change.

WORKING CLEARANCES

Section 20.2 When working from an aerial lift, there shall be two men in the bucket. Figures 1 thru 4 show an aerial device as the insulated component to put the men at the conductor. The same clearances are required when using other means such as ladders, helicopters or rope to gain access to the conductor.

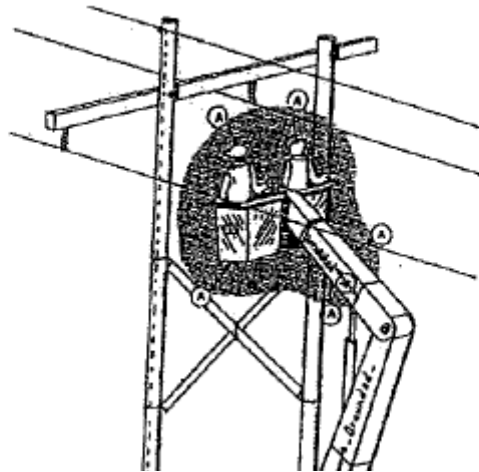


Fig. 1 A-is the minimum phase to ground clearance

- a. No portion of the grounded section of the aerial lift equipment is permitted to be less than phase-to-ground clearance to an energized conductor.



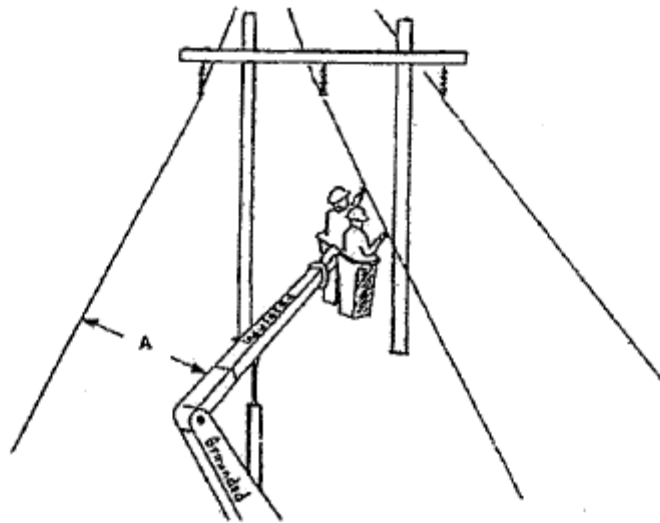


Fig. 2 A-is the minimum phase to ground clearance

- b. No portion of the insulated section of the aerial-lift equipment is permitted to be less than the phase-to-ground clearance from an external grounded part, or from any grounded parts such as the lower arm sections or portions of the vehicle.

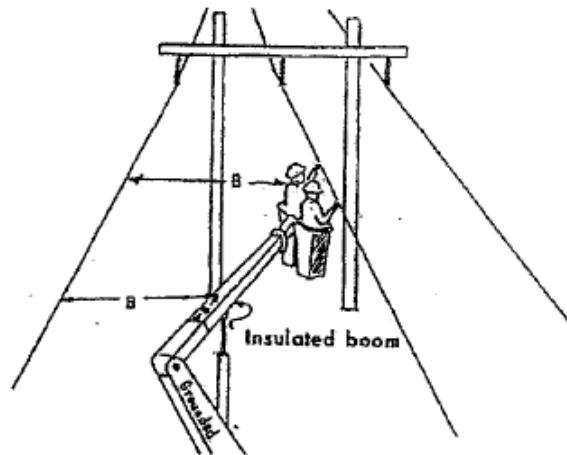


Fig. 3 B-is the minimum phase to phase clearance

- c. No portion of a workman, material, tools aerial platform, or insulated section of the aerial lift equipment is permitted to be less than phase-to-phase clearance to another energized conductor.
- d. When positioning the bucket alongside an energized insulator string, a minimum phase-to-ground clearance requirement shall be maintained between all parts of the bucket, the insulator string, and ground. When working the energized end of the insulator string, the bucket must be positioned so that the bucket or worker shunts no portion of the insulator string.
- e. When positioning buckets over an energized circuit, clearances must take into account the length of the bonding and wanding clamps should the inadvertently hang free. (The wand and clamps cannot hang more than 20" from the bottom of the bucket.

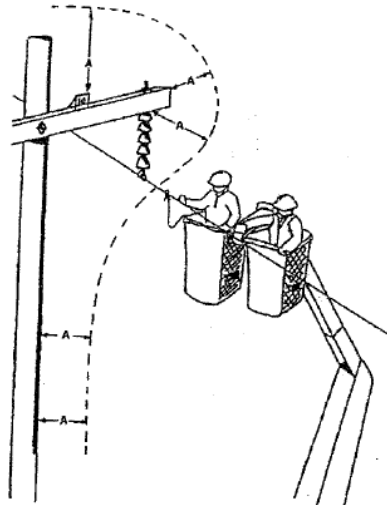


Fig. 4 A-is the minimum phase to ground clearance

During barehand contact with live electrical lines and/or apparatus the limits of approach of all persons, tools, equipment and material they may be handling with respect to objects at ground potential or phase-to-phase potential shall be as specified in the following chart; **but in no case less than 3 feet**. This includes poles, towers, crossarms, or conductors other than the one on which they are working.

Limit of Approach to Live Conductors				
Voltage Range	Distance (FT-IN)		Above 3000' Altitude	
	Phase to Ground	Phase to Phase	Phase to Ground	Phase to Phase
1.1 to 15.0	2-1	2-2	2-6	2-7
15.1 to 36.0	2-4	2-7	2-10	3-1
36.1 to 46.0	2-7	2-10	3-1	3-5
46.1 to 72.5	3-0	3-6	3-7	4-2
72.6 to 121	3-2	4-3	3-10	5-1
138 to 145	3-7	4-11	4-4	5-11
161 to 169	4-0	5-8	4-10	6-10
230 to 242	5-3	7-6	6-4	9-0
345 to 362	8-6	12-6	10-2	15-0
500 to 550	11-3	18-1	13-6	21-7
765 to 800	14-11	26-0	17-11	31-2

Note: Information drawn from OSHA Table R-6 with applicable switching surges included.

Note 1: These distances take into consideration the highest switching surge an employee will be exposed to on any system with air as the insulating medium and maximum voltages shown.

Note 2: The clear live-line tool distance shall equal or exceed the values for the indicated voltage ranges.

Note 3: The above chart takes into account the correction factor of 1.20 applied to OSHA's minimum approach distances. This requirement at elevations greater than 3,000 ft. but not more than 10,000 ft. above mean sea level.

***No barehand work procedure can violate these work rules.***

#### SAFE WORKING LOAD OF BUCKETS

Section 20.3 The buckets and upper insulated boom shall not be used to lift or support weights in excess of its rated capacity. To protect the fiberglass parts, none of the bucket parts or upper arm shall be used as a fulcrum for prying or lifting.

#### CONDUCTIVE CLOTHING

##### Section 20.4

- a. When working on any live line bare handed work, and working on any insulated aerial device, the lineman shall wear a complete conductive clothing kit as a minimum requirement.
- b. When working from an insulated ladder, helicopter or rope support system the lineman shall wear the complete conductive clothing kit.
- c. Linemen involved in barehand procedures, though not bonded to the line but performing work on the structure may wear conductive clothing to eliminate discomforting current discharges.
- d. Leather protective gloves, as part of the kit, shall be worn over conductive gloves.
- e. Conductive clothing shall be worn on the outside of personal clothing, except for in Item d.

#### ADVERSE WEATHER CONDITIONS

Section 20.5 Live line maintenance should not be performed during adverse weather conditions.

#### NONCONDUCTIVE ROPE

##### Section 20.6

- a. Only nonconductive rope that has been tested electrically to ensure its integrity shall be used for barehand work.
- b. Nonconductive rope used as hot rope in barehand work shall be stored in approved, appropriately marked containers.
- c. Nonconductive rope used in barehand work shall be tested daily, or when ever there is any question as to its dielectric quality.
- d. Nonconductive rope used in barehand work shall not be permitted to contact the ground in order to prevent the accumulation of dirt and moisture between the fibers. Approved storage containers and tarps are utilized in the prevention of this occurrence.

#### SUPPORTING CONDUCTOR WITH AERIAL DEVICE

(TANGENT STRUCTURES ONLY)

Section 20.7 Calculate the conductor weight prior to supporting the conductor in the jib. Ensure that the boom capacity is not exceeded when handling a conductor with the jib. When moving a conductor to a different location, prior to attaching jib to the conductor, move boom to the extreme location you wish to move the conductor to, and check the load chart at that location. Make sure the capacity of the boom will not be exceeded at any point.

BOND PROCEDURE

Section 20.8 Install Bonding to the Circuit

- a. Approach the conductor to within a safe limit. The distance must be far enough away so that inadvertent contact will not be made, yet close enough that the lineman "bonding on" can easily reach out with the bonding wand, with a positive movement, and install it onto the conductor. The lineman who is not operating the aerial device (rider) uses the wand to make the initial bond to the circuit.

**Caution:** ***THINK OUTLOUD. Tell your fellow workman what you are going to do and wait for his acknowledgement before you act.***

- b. The operator installs his bonding clamp when in the working position, and insures that the bonding clamp remains connected to the circuit by grasping it with his hand.
- c. The second bonding clamp is then installed.
- d. Remove the wand and store inside the bucket.
- e. Then work may proceed.

Section 20.9 Moving Bonding Clamps

When moving a short distance and the bonding clamps have to be moved one lineman shall always retain his bonding clamp to the circuit by grasping it with his hand while the other lineman moves his bonding clamp to the new position.

Section 20.10 Remove Bonding from the Circuit

- a. The operator of the aerial device retains his bonding clamp to the circuit by grasping it with his hand.
- b. The rider lineman installs the wand and removes his bonding clamp.
- c. The operator's bonding clamp is removed.
- d. Back the aerial device away from the work area and remove the wand from the circuit.

In the event of the horn sounding, standard removal procedures need not be followed: E.g. Back the buckets away pulling the bonds off, or disconnecting the bonds by hand without the use of wands.

Lineman bonding on to or off of energized circuit shall notify any linemen on adjacent wood structures of their intentions before doing so. They in turn will remain clear of any grounds or metallic objects to eliminate the hazards from shocks.

MAXIMUM ALLOWABLE LEAKAGE CURRENTS

Section 20.11 Industry standard recommend maximum allowable leakage currents of 1 microampere per kV of Phase to Ground voltage for a 3-minute test.

Phase to Phase Voltage	Phase to Ground Voltage	Max. Allowed Leakage Current
69kV	40kV	40 microamps
115kV	67kV	67 microamps
138kV	80kV	80 microamps
161kV	94kV	94 microamps
230kV	133kV	133 microamps
345kV	200kV	200 microamps
500kV	289kV	289 microamps

ARTICLE XXI

LIVE LINE TOOLS

Section 21.1 Working by Live Line Tool Method:

- a. Workers shall not go, or take any conducting objects without the aid of live line tools, within the distances specified in Table 1.01.

**Table 1.01**

Nominal System kV (Phase-to-Phase)	Minimum Approach Distance	
	Phase-to-Ground	Phase-to-Phase
0.05-1.0	Avoid Contact	Avoid Contact
1.1-15	2-1	2-2
151-36	2-4	2-7
36.1-46	2-7	2-10
46.1-72.5	3-0	3-6
72.6-121	3-2	4-3
138-145	3-7	4-11
161-169	4-0	5-8
230-242	5-3	7-6
345-362	8-6	12-6
500-550	11-3	18-1
765-800	14-11	26-0

- b. When working with live line tools on lines or equipment energized at 345 kV or above, all relevant circuit breakers shall be set on manual operation.

**Table 1.02**

Nominal System kV	Minimum Insulation	
	Feet	Inches
46KV and Below	3	0
72.5kV	3	6
138RV	4	0
345kV	9	4
500kV	12	4
765kV	17	0

- c. Conductor support tools such as link sticks, strain carriers and insulator cradles may be used, provided that the clear insulation is at least as long as the insulator string or the minimum distance specified in Table 1.02 for the operating voltage. Guards or markers conforming to the clearances given in Table 1.02 shall be placed on live line tools except conductor support tools such as link sticks, strain carriers and insulator cradles. For voltages of less than 69 kV, the guard or marker clearances may be reduced to, but in no case less than, the distances specified in Table 1.01.
- d. Live line tools, insulating working supports and electrical guards shall be wiped clean and visually inspected for defects before use each day. If a defect or contamination that could adversely affect the insulation qualities of the tool is found, the tool shall be removed from service until cleaned and waxed; or repaired, refinished and electrically tested before use as required.
- e. Live line tools shall have their surfaces kept sealed or other steps shall be taken to ensure that the tools remain dry.
- f. Live line tools used for primary employee protection shall be removed from service every two (2) years. A complete visual inspection, cleaning, and waxing of the tool shall be performed. The biennial inspection of hollow fiberglass reinforced plastic (FRP) live line tools shall include electrical testing.
- g. When working with live line tools and clearances required by Table 1.01 cannot be maintained to energized equipment not being worked on, barriers providing the clearances specified in Table 1.03.

**Table 1.03**

Nominal System Voltage	Phase-to-Ground Inches	Phase-to-Phase Inches
15kV and below	1	2
15.1 to 36kV	4	7
36.1 to 46 KV	7	10
46.1 to 72.5kV	12	18

- h. When working from ladders at system voltages of 138 kV and above, workers may require shielding.

ARTICLE XXII

OSHA BARE HANDED STANDARDS

Section 22.1

**1910.269 (q) (3)**

"Live-line bare-hand work." In addition to other applicable provisions contained in this section, the following requirements apply to live-line bare-hand work:

**1910.269 (q) (3) (i)**

Before using or supervising the use of the live-line bare-hand technique on energized circuits, employees shall be trained in the technique and in the safety requirements of paragraph (q) (3) of this section. Employees shall receive refresher training as required by paragraph (a) (2) of this section.

**1910.269 (q) (3) (ii)**

Before any employee uses the live-line bare-hand technique on energized high-voltage conductors or parts, the following information shall be ascertained:

**1910.269 (q) (3) (ii) (A)**

The nominal voltage rating of the circuit on which the work is to be performed,

**1910.269 (q) (3) (ii) (B)**

The minimum approach distances to ground of lines and other energized parts on which work is to be performed, and

**1910.269 (q) (3) (ii) (C)**

The voltage limitations of equipment to be used.

**1910.269 (q) (3) (iii)**

The insulated equipment, insulated tools, and aerial devices and platforms used shall be designed, tested, and intended for live-line bare-hand work. Tools and equipment shall be kept clean and dry while they are in use.

**1910.269 (q) (3) (iv)**

The automatic-reclosing feature of circuit-interrupting devices protecting the lines shall be made inoperative, if the design of the devices permits.

**1910.269 (q) (3) (v)**

Work may not be performed when adverse weather conditions would make the work hazardous even after the work practices required by this section are employed. Additionally, work may not be performed when winds reduce the phase-to-phase or phase-to-ground minimum approach distances at the work location below that specified in paragraph (q) (3) (xiii) of this section, unless the grounded objects and other lines and equipment are covered by insulating guards.

Note: Thunderstorms in the immediate vicinity, high winds, snow storms, and ice storms are examples of adverse weather conditions that are presumed to make live-line bare-hand work too hazardous to perform safely.

**1910.269 (q) (3) (vi)**

A conductive bucket liner or other conductive device shall be provided for bonding the insulated aerial device to the energized line or equipment.

**1910.269 (q) (3) (vi) (A)**

The employee shall be connected to the bucket liner or other conductive device by the use of conductive shoes, leg clips, or other means.

**1910.269 (q) (3) (vi) (B)**

Where differences in potentials at the worksite pose a hazard to employees, electrostatic shielding designed for the voltage being worked shall be provided.

**1910.269 (q) (3) (vii)**

Before the employee contacts the energized part, the conductive bucket liner or other conductive device shall be bonded to the energized conductor by means of a positive connection. This connection shall remain attached to the energized conductor until the work on the energized circuit is completed.

**1910.269 (q) (3) (viii)**

Aerial lifts to be used for live-line bare-hand work shall have dual controls (lower and upper) as follows:

**1910.269 (q) (3) (viii) (A)**

The upper controls shall be within easy reach of the employee in the bucket. On a two-bucket-type lift, access to the controls shall be within easy reach from either bucket.

**1910.269 (q) (3) (viii) (B)**

The lower set of controls shall be located near the base of the boom, and they shall be so designed that they can override operation of the equipment at any time.

**1910.269 (q) (3) (ix)**

Lower (ground-level) lift controls may not be operated with an employee in the lift, except in case of emergency.

**1910.269 (q) (3) (x)**

Before employees are elevated into the work position, all controls (ground level and bucket) shall be checked to determine that they are in proper working condition.

**1910.269 (q) (3) (xi)**

Before the boom of an aerial lift is elevated, the body of the truck shall be grounded, or the body of the truck shall be barricaded and treated as energized.

**1910.269 (q) (3) (xii)**

A boom-current test shall be made before work is started each day, each time during the day when higher voltage is encountered, and when changed conditions indicate a need for an additional test. This test shall consist of placing the bucket in contact with an energized source equal to the voltage to be encountered for a minimum of 3 minutes. The leakage current may not exceed 1 microampere per kilovolt of nominal phase-to-ground voltage. Work from the aerial lift shall be immediately suspended upon indication of a malfunction in the equipment.

**1910.269 (q) (3) (xiii)**

The minimum approach distances specified in Table R-6 through Table R-10 shall be maintained from all grounded objects and from lines and equipment at a potential different from that to which the live-line bare-hand equipment is bonded, unless such grounded objects and other lines and equipment are covered by insulating guards.

**1910.269 (q) (3) (xiv)**

While an employee is approaching, leaving, or bonding to an energized circuit, the minimum approach distances in Table R-6 through Table R-10 shall be maintained between the employee and any grounded parts, including the lower boom and portions of the truck.

**1910.269 (q) (3) (xv)**

While the bucket is positioned alongside an energized bushing or insulator string, the phase-to-ground minimum approach distances of Table R-6 through Table R-10 shall be maintained between all parts of the bucket and the grounded end of the bushing or insulator string or any other grounded surface.



**1910.269 (q) (3) (xvi)**

Hand lines may not be used between the bucket and the boom or between the bucket and the ground. However, non-conductive-type hand lines may be used from conductor to ground if not supported from the bucket. Ropes used for live-line bare-hand work may not be used for other purposes.

**1910.269 (q) (3) (xvii)**

Uninsulated equipment or material may not be passed between a pole or structure and an aerial lift while an employee working from the bucket is bonded to an energized part.

**1910.269 (q) (3) (xviii)**

A minimum approach distance table reflecting the minimum approach distances listed in Table R-6 through Table R-10 shall be printed on a plate of durable non-conductive material. This table shall be mounted so as to be visible to the operator of the boom.

**1910.269 (q) (3) (xix)**

A non-conductive measuring device shall be readily accessible to assist employees in maintaining the required minimum approach distance.

**1910.269 (q) (4)**

"Towers and structures." The following requirements apply to work performed on towers or other structures which support overhead lines.

**1910.269 (q) (4) (i)**

The employer shall ensure that no employee is under a tower or structure while work is in progress, except where the employer can demonstrate that such a working position is necessary to assist employees working above.

**1910.269 (q) (4) (ii)**

Tag lines or other similar devices shall be used to maintain control of tower sections being raised or positioned, unless the employer can demonstrate that the use of such devices would create a greater hazard.

**1910.269 (q) (4) (iii)**

The loadline may not be detached from a member or section until the load is safely secured.

**1910.269 (q) (4) (iv)**

Except during emergency restoration procedures, work shall be discontinued when adverse weather conditions would make the work hazardous in spite of the work practices required by this section.

Note: Thunderstorms in the immediate vicinity, high winds, snow storms, and ice storms are examples of adverse weather conditions that are presumed to make this work too hazardous to perform, except under emergency conditions.