Chapter 296-32 WAC

Safety Standards for Telecommunications

(Form Number F414-017-000)

This book contains rules for Safety Standards for telecommunications, as adopted under the Washington Industrial Safety and Health Act of 1973 (Chapter 49.17 RCW).

The rules in this book are effective January, 2025. A brief promulgation history, set within brackets at the end of this chapter, gives statutory authority, administrative order of promulgation, and date of adoption of filing.

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Chapter 296-32 WAC

TELECOMMUNICATIONS

WAC 296-32-195 Foreword.

The purpose of this chapter is to ensure the workplace for telecommunications employees is free from recognized safety and health hazards. The rules contained herein require that worker safety receive a higher degree of priority than production, speed and profit. Worker safety is paramount and employers must ensure that employees are trained and are authorized and/or competent in the provision(s) of this chapter. Employees are expected to follow the provisions of this chapter in accordance with their experience and training. This chapter is not intended to be a complete job description of telecommunications personnel nor is it expected that this chapter will cover every potential hazard that an employer or their employees may encounter. When a hazard exists beyond what is conveyed in this chapter employers and employees are expected, in good faith, to mutually discuss the hazards and agree as to how to perform the work in the safest manner.

To achieve the greatest degree of safety it is critical to understand that the telecommunications industry is ever changing and therefore has many different disciplines and training requirements. There will be definitions that apply to the chapter as a whole and each specific application. It is important to remember that it is the employers' responsibility to ensure that their employees have the competency and necessary training for the work being performed and understand how sections of this chapter apply and afford the greatest possible protection for their employees.

The department of labor and industries (LNI) is the sole administrative agency responsible for the administration and interpretation of this chapter in accordance with the Washington Industrial Safety and Health Act of 1973. If there are questions concerning meaning or interpretation about any provision contained within this chapter, please direct them to the department and its authorized representatives.

Evidence has shown that the majority of injuries and deaths in the workplace are preventable. Evidence also indicates that the majority of injuries and deaths are due to the failure of the employer and/or employee to comply with and utilize safe work practices. Information contained in this chapter was a collaborative effort and derived from existing telecommunication industry standards, experience in the field and training. Telecommunication safety requires engineering design, environmental, operational and administrative controls, training policies, personal protective equipment (PPE) and appropriate employee behavior while adhering to safety rules and industry standards. With these components in place and adhered to, work must be appropriately scheduled, properly planned and safely performed.

WAC 296-32-200 Scope and application.

(1) This chapter sets forth safety and health standards that apply to the work conditions, practices, means, methods, operations, installations and processes performed at telecommunication facilities and at telecommunications field installations, which are located outdoors or in building spaces used for such field installations. "Facility" work includes the installation, operation, maintenance, rearrangement, and removal of communications equipment and other associated equipment in telecommunications facilities. "Field" work includes the construction, installation, operation, maintenance, rearrangement, and removal of conductors, antenna systems and other equipment used for signal or communication service, and of their supporting or containing structures for landline or wireless communications. This could include overhead or underground, on public or private rights of way, or other lands, buildings or other structures, including those locations that may fall under the scope of chapter 296-45 WAC.

> **Note**: Work that falls under the scope of chapter 296-45 WAC may include, but is not limited to, transmission towers, poles, substations, and substation equipment.

(2) These rules set forth the minimum requirements for employers to protect employees from the hazards associated with working on communication towers, structures, and poles. This includes antenna and antenna supporting structures, broadcast and other similar structures that support communication related equipment, during construction, alteration, repair, operation, inspection, maintenance, demolition activities and any other activities connected to accomplishing work associated with this chapter.

(3) The three primary parts of this chapter are as follows:

- Part A: General requirements – This part is intended to convey the areas of responsibility to employers when working on telecommunications facilities or locations of any type.
- Part B: Requirements that apply to wireline – This part is intended to convey to the employer the responsibilities for training and protection of their employees working with or in telecommunications wireline facilities and field installations. Areas of Part B may also apply to the wireless Part C.
- Part C: Requirements that apply to wireless – This part is intended to convey to the employer the responsibilities for the training and protection of their employees working with or upon telecommunications wireless facilities and field installations. Areas of Part C may also apply to the wireline Part B.

(4) These standards do not apply to installations under the exclusive control of electric utilities used for the purpose of communications or metering, or for generation, control, transformation, transmission, and distribution of electric energy, which are located in buildings used exclusively by the electric utilities for such purposes, or located outdoors on property owned or leased by the electric utilities or on public highways, streets, roads, etc., or outdoors by established rights on private property.

(5) Operations or conditions not specifically covered by this chapter are subject to all other applicable Washington Administrative Code to include, but not limited to, chapter 296-24 WAC, General safety and health standards, chapter 296-27 WAC, Recordkeeping and reporting, chapter 296-800 WAC, Safety and health core rules, and chapter 296-62, General occupational health standards. Operations which involve construction work not covered by this chapter, as defined in chapter 296-155 WAC, are subject to the applicable standards contained in chapter 296-155 WAC, Safety standards for construction work and other recognized industry standards that may be applicable to hazards or exposures not covered by this chapter.

(6) This standard will augment the Washington state general safety and health standards chapter 296-24 WAC, General occupational health standards, chapter 296-62 WAC, electric power generation, transmission and distribution rules, chapter 296-45 WAC, and any other standards which are applicable to all industries governed by the Washington Industrial Safety and Health Act. In the event of a conflict arising between any portion of this chapter and any portion of the aforementioned standards, the provisions of this chapter 296-32 WAC, will apply. Additionally, operations, conditions, work methods and other work related situations or activities may be subject to additional rules and regulations depending upon the nature of the work being performed.

(7) All communication companies and entities operating communication facilities, networks or systems within the state of Washington must design, construct, operate, and repair their lines and equipment according to the requirements of the following:

(a) Wireline facilities must meet the requirements of 2016 National Electric Safety Code (NESC)(ANSI-C2).

(b) Structures which have the primary purpose to serve as antenna supporting structures must meet the design requirements of ANSI/TIA 222-G-2005.

(c) Telecommunications construction standards, ANSI/TIA-322, 2016 and ANSI/ASSE A10.48, 2016.

(8) In exceptional cases where compliance with specific provisions of this chapter can only be accomplished to the serious detriment and disadvantage of an operation, variance from the standards or requirements may be permitted by the director of the department of labor and industries after receipt of application and approval for a variance which meets the requirements of WAC 296-900-11005.

(9) The provisions of this chapter will be enforced through inspections or consultation activities conducted by properly trained, qualified and authorized safety and health officers designated by the department.

WAC 296-32-210 Definitions.

The terms used in these standards will be interpreted in the most commonly accepted sense consistent with the communications industry. The words "shall" and "must," are used to indicate the provisions which are mandatory.

Acceptable conditions for access. The conditions that must exist before the employer authorizes and grants permission for construction, alteration, repair or maintenance work. These conditions include the following:

(a) Work under the control of a work safety program meeting the requirements of the rules in this chapter;

(b) Notwithstanding the prohibitions outlined in this rule, if emergency maintenance work must be performed where there is an accumulation of snow, ice or other slippery material, the employer must implement safe work practices (equipment, practices and procedures) that address the hazards known to be associated with work to minimize the associated risk to employees while working.

Accessible radiation. Laser radiation to which human access is possible.

Adverse weather. Does not abdicate the responsibility of the employer to provide for a safe work environment. Proper clothing and safety equipment must be suitable for the work intended. When adverse weather (such as high winds, heat, cold, lightning, rain, snow or sleet) creates a hazardous condition, operations must be suspended until the hazardous condition no longer exists.

Aerial lifts. Includes, but are not limited to, the following types of vehicle-mounted aerial devices used to elevate personnel to job sites above ground:

(a) Extensible boom platforms;

(b) Aerial ladders;

(c) Articulating boom platforms;

(d) Vertical towers;

(e) A combination of any of the above defined in ANSI A92.2-2015. These devices are made of metal, wood, fiberglass, reinforced plastic (FRP), or other material; are powered or manually operated and are deemed to be aerial lifts whether or not they are capable of rotating above a substantially vertical axis.

Aerial splicing platform. This usually or commonly consists of a platform, approximately 3 feet x 4 feet, used to perform aerial cable work. It is furnished with fiber or synthetic ropes for supporting the platform from aerial strand, detachable guy ropes for anchoring it, and a device for raising and lowering it with a handline.

Aerial tent. A small tent usually constructed of vinyl coated canvas which is usually supported by light metal or plastic tubing. It is designed to protect employees in inclement weather while working on ladders, aerial splicing platforms, or aerial devices.

Anchorage. A secure connecting point or a terminating component of a fall protection system or rescue system capable of safely supporting the impact forces applied by a fall protection system or anchorage subsystem.

Anti-two block device. A positive acting device that prevents contact between the load block or overhaul ball and the top block (two-blocking) or a system that deactivates the hoisting action before damage occurs in the event of a two-block situation.

Articulating boom lift/crane. A crane or boom lift whose boom consists of a series of folding, pin connected structural numbers, typically manipulated to extend or retract by power from hydraulic cylinders.

Assisted rescue. A rescue requiring the assistance of others.

Automatic descent control device. A load lowering device or mechanism that automatically controls pay-out speed of line or descent speed under load once it has been engaged.

Barricade. A physical obstruction such as tapes, cones, or "A" frame type wood and/or metal structure intended to warn and limit access to a work area.

Barrier. A physical obstruction which is intended to prevent contact with energized lines or equipment, or to prevent unauthorized access to a work area.

Boatswain chair. A single-point adjustable suspension scaffold consisting of a seat or sling (which may be incorporated into a full body harness) designed to support one employee in a sitting position.

Bond. An electrical connection from one conductive element to another for the purpose of minimizing potential differences or providing suitable conductivity for fault current or for mitigation of leakage current and electrolytic action.

Brakes. A mechanical or hydraulic system that can decelerate or stop a load.

Cable. An insulated or uninsulated electrical conductor, often in strands or any combination of electrical conductors that may be insulated from one another.

Cable sheath. A protective covering applied to cables.

> **Note**: A cable sheath may consist of multiple layers of which one or more is conductive.

Cage. A barrier, which may be referred to as a cage guard or basket guard, that is an enclosure mounted on the side rails of the fixed ladder or fastened to the structure to enclose the climbing space of the ladder.

Capstans. A spool-shaped mechanical device mounted on the end of a shaft around which a rope is wrapped; sometimes called a cathead when used in a horizontal position; can be pole mounted, tower mounted, or truck mounted.

Carabiner. A connector generally comprised of a trapezoidal or oval shaped body with a closed gate or similar arrangement that may be opened to attach another object and, when released, automatically closes to retain the object.

Carrier. The track of a ladder safety device consisting of a flexible cable or rigid rail.

Circuit. A conductor or system of conductors through which an electric current is intended to flow; or an electrical device that provides a path for an electrical current to flow.

Clearance. The distance from a specified reference point or protection by the use of protective devices to prevent accidental contact by persons or objects on approach to a point of danger.

Climber attachment anchorage. An anchorage point for attaching a lanyard or similar fall protection device. See also "anchorage".

Climbing facilities. A series of attachments installed on a support structure, or antenna, on which a climber may step while ascending or descending, and which may incorporate or employ:

(a) Steps, rungs, cleats and/or structural members which form an integral part of the structure;

(b) Rungs, cleats or step bolts which are attached to the structure;

(c) Fixed ladders, safety devices, platforms and cages used for climbing or working on communication structures; or

(d) Climber attachment anchorages.

Climbing space. The space reserved on poles or structures that permits ready access for workers to gain access to equipment and conductors located on poles or structures.

Communication lines. The conductors and their supporting or containing structures for telephone, telegraph, railroad signal, data, clock, fire, police-alarm, community television fiber optic, and other systems which are used for public or private signal or communication services, and which operate at potentials not exceeding 400 volts to ground or 750 volts between any 2 points of the circuit, and the transmitted power of which does not exceed 150 watts. When communications lines operate at less than 150 volts to ground, no limit is placed on the capacity of the system. Specifically designed communications cables may include communication circuits not complying with the preceding limitations, where such circuits are also used incidentally to supply power to communication equipment.

Communication plant. The lines and conductors and their associated equipment required to provide public or private signals for communicative service.

Communication tower. Any structure that is used primarily as an antenna or to provide attachment points for one or more antennas or signaling devices. Where the communication tower is affixed to another structure, such as an electrical transmission tower, church steeple, building rooftop, or water tower, the applicable part of any controlling regulation for protection of employees must apply up to the point of access to the communication tower.

Competent climber. An individual with the physical capabilities to climb; has actual tower climbing experience; is trained in fall protection regulations including the equipment that applies to tower work; is capable of identifying existing and potential fall hazards; and has the employer's authority to take prompt corrective action to eliminate those hazards.

Competent person. A person who has been trained pertaining to their job assignment and can identify existing and predictable hazards in their surroundings that are either unsanitary, hazardous, or dangerous to employees and has the authority by the nature of their position to take prompt corrective measures to eliminate them. The person must also be knowledgeable in the requirements of this chapter to be competent.

Competent rescuer. An individual designated by the employer who by training, knowledge and experience is capable of the implementation, supervision and monitoring of a rescue at height in the event of an emergency. This person must have the employer's authority to write the individual site rescue plan, and may be designated to manage the employer's fall protection rescue program.

Competent rigger. A person knowledgeable and experienced with the procedures and equipment common to the communication structures industry and trained to identify hazards with authorization to take prompt corrective measures.

Conductor. A material, usually in the form of a wire, cable, or bus bar, suitable for carrying an electric current.

Construction work. Includes all or any part of excavation, construction, erection, alteration, repair, demolition, and dismantling, of buildings and other structures and all operations in connection therewith; the excavation, construction, alteration and repair of sewers, trenches, caissons, conduits, pipe lines, roads and all operations pertaining thereto; the moving of buildings and other structures, and to the construction, alteration, repair, or removal of wharfs, docks, bridges, culverts, trestles, piers, abutments or any other construction, alteration, repair or removal work related thereto.

Construction work. For purposes of Part C of this chapter also means field activities related to the installation, alteration, maintenance or demolition/decommission of antenna supporting structures and antennas.

Contract employer. An employer, other than a host employer, that performs work covered by this chapter under contract.

Crew. A group of two or more employees of one employer sent to a worksite to work on the same project.

Crew chief/supervisor/foreman. One who is authorized and designated as competent and qualified by the employer.

Crewleader or person-in-charge. Person directly in charge of employees doing the work regardless of title.

Crown block (top block). The upper sheave assembly attached to a structure used to change the direction of a load or jump line coming from a hoist.

Deceleration distance. The vertical distance between the user's fall arrest attachment at the onset of fall arrest forces during a fall, and after the fall arrest attachment comes to a complete stop.

Direct communications. The effective and reliable two-way communication, being able to send and receive communications, between crew members or crews using normal voice communication, visual, radio, or cellular means.

Effectively grounded. Intentionally connecting equipment to earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent the transmission of fault current or voltages which may result in undue hazard to employees or connected equipment.

Elevated (high angle) rescue. The process by which emergency methods and equipment are utilized in order to gain access to and egress from the location of an injured employee(s) on a tower structure, or other elevated structures and lower both the injured employee(s) and the rescuer(s) to the ground safely.

Emergency. An unforeseen occurrence endangering life, limb, or property which requires immediate action.

Emergency washing facilities. Typically consist of emergency showers, eyewashes, eye/face washes, hand-held drench hoses, or other similar units.

Energized (alive or live). Electrically connected to a source of potential difference or electrically charged so as to have a potential different from that of the earth or different from that of adjacent conductors or equipment.

Engineer of record (EOR). A registered professional engineer with expertise in the discipline applicable to the scope of work and responsible for the structural adequacy of the design of the structure in the completed project.

Engineered hoist system. A hoist system that is the complete system for hoisting, including: The frame, mounts and/or anchorages, prime mover (winch assembly), motors, drums, truck chassis (if used as the base for the hoist), wheel chocks, wire rope, hour meter, foot blocks, gin pole (if used), and rooster head or cat head, as applicable.

Equipment. A general term which includes materials, fittings, devices, appliances, fixtures, apparatus, and similar items used as part of, or in connection with, a supply or communications installation to include all machinery used in the performance of constructing and maintaining communication systems.

Exit. Provides a way of travel out of the workplace.

Exit route. A continuous and unobstructed path of exit or travel from any point within a communications workplace, structure, or site to provide a safe means of withdrawal.

Exposed live parts. Electrical parts that are not suitably covered, guarded, isolated, or insulated and are capable of being accidentally accessed, touched or approached closer than a safe distance.

Exposed wiring methods. Those methods working with electrical wires that are attached to surfaces or behind panels designed to allow access to the wires.

Fall arrest. The action or event of stopping a free fall or the instant where the downward free fall has been stopped.

Fall arrest system. The collection of equipment components that are configured to arrest a free fall.

Fall protection equipment. The personal equipment that employees utilize in conjunction with fall protection systems, including connectors, body belts or body harnesses, lanyards, ropes, deceleration devices, and anchorage points to ensure 100 percent fall protection for the employees.

Fall protection work plan. A written planning document in which the employer identifies all areas on the job site where fall hazards may exist. Detailed requirements relating to a fall protection work plan are covered in WAC 296-32-22555 and 296-32-24012 of this chapter.

Fall restraint. A system in which all necessary components function together to restrain or prevent an employee from falling to a lower level. Types of fall restraint systems include guardrail systems and personal fall restraint system(s) that prevents the user from falling any distance. The system is comprised of either a lineman's belt or full body harness, along with an anchorage, connectors and other necessary equipment. The other components typically include a lanyard, and may also include a lifeline and other devices.

Fiber-optic cable – Communication. A fiber-optic cable meeting the requirements for a communication line and located in the communication space of overhead or underground facilities.

Fiber-optic cable – Supply. A fiber-optic cable located in the supply space of overhead or underground facilities.

Field work. The construction, installation, operation, maintenance, rearrangement, and removal of conductors, antenna systems, and other equipment used for signal or communication service, and of their supporting or containing structures for landline or wireless communications.

First aid. The extent of treatment you would expect from a person trained in basic first aid, using supplies from a first-aid kit. Tests, such as X rays, must not be confused with treatment.

Flemish eyes (Molly Hogan). An eye splice made by using stranded cable and weaving them together to make an eye.

Floor hole. An opening measuring less than twelve inches but more than one inch in its least dimension in any floor, roof, platform, or surface through which materials but not persons may fall, such as a belt hole, pipe opening, or slot opening.

Floor opening. An opening measuring twelve inches or more in its least dimension in any floor, roof, platform, or surface through which persons may fall.

Foot block (heel or base block). A block stationed or positioned at the base of a structure or pole that allows a line, rope or wire rope to change direction 90 degrees to go up the structure.

Full body harness. A body support that is designed to contain the torso in such a manner that fall arrest forces are distributed over at least the upper thighs, pelvis, chest, and shoulders, with provisions for attaching a lanyard, lifeline, or deceleration devices. These specifications must meet the requirements specified in ANSI Z359.1-2007.

Gin pole. A device unique to the telecommunications industry and is used to raise successive sections of tower steel, antennas, personnel or equipment into position. This temporary device allows headroom above the highest fixed point of the tower or structure.

Gross load. The total load to be lifted. This includes the weight of the lifted object, headache ball, the load line, tag line, and any other attachments.

Ground. A conductive body, usually earth, to which an electric potential is referenced; the connecting or establishment of a connection, whether by intention or by accident; a conducting connection, between an electric circuit and equipment and earth or so some other conducting body that serves in place of the earth.

Grounded. To be positively connected to or in contact with earth or connected to an extended conduction body that serves instead of earth. A conducting object such as, but not limited to, a wire that is connected to such a position as zero potential. A connection has been made between an electrical circuit or equipment and the earth or another conducting body besides the earth, used as an arbitrary zero of potential.

Grounding (for employee protection). The act of placing shorts and grounds on conductors and equipment for the purpose of protecting employees from dangerous voltages while working on such lines or equipment.

Ground tent. A small tent usually constructed of vinyl coated canvas supported by a metal or plastic frame. Its purpose is to protect employees and the equipment from inclement weather while working at buried cable pedestal sites or similar locations.

Grounded conductor. A system or circuit conductor which is intentionally grounded.

Grounded systems. A system of conductors/equipment in which at least one conductor or point is intentionally grounded, either solidly or through a current-limiting device (not a current-interrupting device).

Grounding electrode conductor (grounding conductor). A conductor used to connect equipment or the grounded components of a wiring system to a grounding electrode.

Guard or guarded. Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, platforms, or warning signs or devices to remove the possibility of dangerous contact to lines, equipment or devices, limiting or preventing approach by other persons or objects to a point of danger.

Guardrails. A type of fall restraint system that is a horizontal barrier consisting of a top rail and mid rail, and toe board when used as falling object protection for persons who may work or pass below, that is erected along all open sides or edges of a walking/working surface, a floor opening, a floor hole, wall opening, ramp, platform, or runway.

Handrail. A single bar or pipe supported on brackets from a wall or partition to provide a continuous handhold for persons using a stair.

Hazard. Any condition, potential or inherent, which can cause injury, death, or occupational disease.

High wind. A wind condition that is determined to be at such velocity as to create a hazard to the employees performing aerial tasks as an employee would be exposed to being blown from elevated locations, lose footing and control; that wind speed which has been determined to be unsafe by the manufacturer of the particular equipment being used (cranes, lifts, booms, etc.) and/or equipment being installed. Winds exceeding 25-30 miles per hour (48.3 kilometers per hour) if material handling is involved, winds exceeding 40 miles per hour (64.4 kilometers per hour) are normally considered as meeting this criteria.

Hoist mechanism or **hoist**. The complete unit including frame, prime mover (winch assembly), pumps, motors, drums, and any associated equipment that is necessary to make the complete unit work and is used to lift a load.

Hoisting. The act of lifting and/or lowering loads or personnel.

Horizontal lifeline. A rail, rope, wire, or synthetic cable that is installed in a horizontal plane between two anchorages and used for attachment of an employee's lanyard or lifeline device while moving horizontally.

Host employer. An employer who operates or maintains telecommunications facilities covered by this chapter and who authorizes a contract employer to perform work on that installation.

Note to the definition of "host employer":

The Division of Safety and Health (DOSH) will treat the telecommunication company or the owner of the installation as the host employer if it operates or controls operating procedures for the installation. If the telecommunication company or installation owner neither operates nor controls the operating procedures for the installation, DOSH will treat the employer that the telecommunication owner has contracted with to operate or control the operating procedures for the installation as the host employer. In no case will there be more than one host employer.

Individual-rung/step ladder. A fixed ladder consisting of individual steps, rungs or climbing pegs mounted directly to the surface, side or wall of the pole, structure, building, equipment, or vault.

Insulated. Separated from other conducting surfaces by a dielectric substance for the intended applied voltage or may be subject to (including air space) offering a high resistance to the passage of current.

Note: When any object is said to be insulated, it is understood to be insulated in a suitable manner for the conditions to which it is subjected. Otherwise, it is, within the purpose of these standards, uninsulated. Insulating coverings of conductors is one means of making the conductor insulated.

Insulation (as applied to cable). That which is relied upon to insulate the conductor from other conductors or conducting parts or from ground.

Job hazard assessment. A process used to identify hazards and the methods to eliminate or control those hazards.

Joint use. The sharing of a common facility, such as a manhole, trench or pole, by two or more entities or utilities, such as, but not limited to, power, alarm systems, signal lighting and telecommunications.

Ladder. A device incorporating or employing steps, rungs, or cleats.

Ladder platform. A device designed to facilitate working aloft from an extension ladder. A typical device consists of a platform (approximately 9" x 18") hinged to a welded pipe frame. The rear edge of the platform and the bottom crossmember of the frame are equipped with latches to lock the platform to ladder rungs.

Ladder safety device. Any device, other than a cage or well, designed to arrest the fall of a person using a fixed ladder.

Ladder safety system. A system designed to eliminate or reduce the possibility of falling from a ladder. A ladder safety system usually consists of a carrier, safety sleeve, lanyard, connectors, and body harness. Cages and wells are not ladder safety systems.

Ladder seat. A removable seat used to facilitate work at an elevated position on rolling ladders in telecommunication centers.

Landing. An area such as the ground, roof, or platform that provides access/egress for a fixed ladder.

Laser safety officer. One who has authority and responsibility to monitor and enforce the control of laser hazards and effect the knowledgeable evaluation and control of lasers.

Length of climb. The total vertical distance a person could climb in traveling between the extreme points of access/egress for a fixed ladder, whether the ladder is of an unbroken length or consists of multiple sections. This total vertical distance is determined by including all spaces between all ladder steps or rungs and all other vertical intervening spaces between the extreme points of access/egress.

Line clearance tree trimming. The pruning, trimming, repairing, maintaining, removing or clearing of trees or the cutting of brush that is within 10 feet (305 cm) of electric supply lines or equipment.

Lineman's body belt. A body support comprised of a strap, at least four inches in width, designed to be compatible with an approved fall restraint system.

Line patrol. Looking at aerial plants after storm damage for damaged lines.

Line truck. A truck used to transport employees, tools, and material, and to serve as a traveling workshop for telecommunication installation and maintenance work. It is sometimes equipped with a boom and auxiliary equipment for setting poles, digging holes, and elevating material or employees.

Listed. Equipment that is listed in a publication by a nationally recognized laboratory (such as, but not limited to, UL (Underwriters' Laboratories, Inc.)) that inspects and approves that type of equipment. Listed equipment must also state that the equipment meets nationally recognized standards or has been tested and found safe to use in a specific manner.

Load chart. A chart used that is affixed to and specific to the equipment to determine the lifting capacities under specified parameters and an understanding of the working parameters within which the capacities are to be used.

Load line. A synthetic or wire rope of sufficient size, durability and strength to raise and lower the intended gross load safely.

Locking snap hook. A connecting snap hook that requires two separate forces to open the gate; one to deactivate the gatekeeper and a second to depress and open the gate which automatically closes when released; used to minimize roll out or accidental disengagement.

Lockout. Placing a lockout device on an energy-isolating device using an established procedure to make sure the machine or equipment cannot be operated until the lockout device is removed.

Lockout device. A device that uses a positive means, such as a key or combination lock, to hold an energy-isolating device in the “safe” or “off” position. This includes blank flanges and bolted slip blinds.

Manhole. A subsurface enclosure which personnel may enter and which is used for the purpose of installing, operating, and maintaining underground and submersible equipment and/or cable.

Manhole platform. A platform consisting of separate planks which are laid across platform supports. The ends of the supports are engaged in the manhole cable racks or approved support points designed for human support.

Manlift equipment. Types of portable truck-,trailer, crane-mounted equipment, such as mechanical, electric or hydraulic ladders and boom-mounted or suspended buckets platforms or cages.

Manual descent control device with automatic lockoff. A manual descent control device with automatic lockoff features having provision for both “hands-free” and “panic” locking capabilities.

Maximum intended personnel load/gross load. The total load and weight of all employees; their tools, materials, load lines, and other loads reasonably anticipated to be applied to the hoist apparatus when an employee is hoisted.

Maximum permissible exposure (MPE). The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with an acceptable safety factor.

May (and “**should**”) or “**it is recommended**” are used to indicate the provisions are not mandatory but are recommended.

Microwave transmission The act of communicating, sending, receiving or signaling utilizing a frequency between 1 GH_z (gigahertz) and 300 GH_z inclusively.

Mobile crew. A work crew that routinely moves to a different work location periodically. Normally a mobile crew is not at the same location all day.

Multi-use site for towers and antennas. Any site where more than one subscriber has antennas for the use of communication purposes.

Must and “shall” as used in this chapter make the provisions mandatory.

Nearby facility. A sanitary facility that is within three minutes travel by the transportation provided.

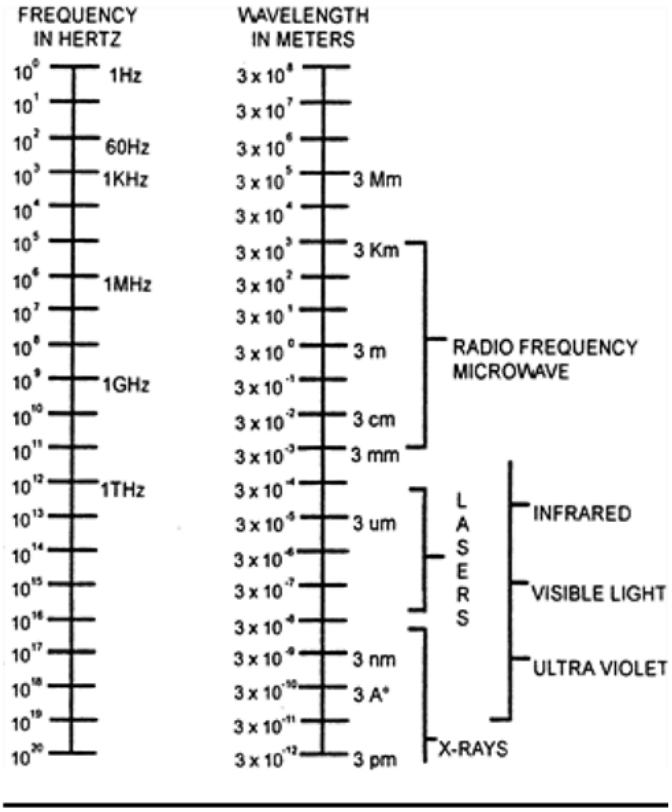
NEMA. These initials stand for National Electrical Manufacturing Association.

Nominal voltage. The nominal voltage of a system or circuit is the value assigned to a system or circuit of a given voltage class for the purpose of convenient designation. The actual voltage may vary above or below this value.

Nonionizing radiation (RFR) as related to industrial sources. Electromagnetic radiation within the spectral range of approximately 200 nanometers to 3 kilometers including ultraviolet, visible, infrared and radiofrequency/microwave radiation.

Electromagnetic Spectrum

Figure 1



Normally unattended work location. An unattended site that is visited occasionally by one or more employees.

Oil sample analysis. A method used to evaluate oil, which may not necessarily mean a laboratory analysis, but one that could be effectively accomplished in the field by a qualified person; usually done to evaluate/ascertain the PCB levels or insolative qualities of the oil.

One hundred percent (100 percent) fall protection. Each employee exposed to fall hazards above 4 feet while ascending or descending, moving point to point, or working from a platform, crane basket, lift or bucket truck; must be protected by fall protection 100 percent of the time.

Operator (equipment). A person who runs or operates equipment used in the construction and maintenance of communication systems.

Permissible exposure limits (PELs). A time-weighted average (TWA) of exposure for an eight-hour work day within a forty-hour workweek. Exceptions are those limits which are given a ceiling value.

Personal eyewash units. Portable, supplementary units that support plumbed units or self-contained units, or both, by delivering immediate flushing for less than fifteen minutes.

Platform. A work surface elevated above the surrounding floor or ground level.

Pole balcony or seat. A balcony or seat used as a support for employees at pole-mounted equipment or terminal boxes. A typical device consists of a bolted assembly of composite or steel details and a wooden platform. Composite or steel braces run from the pole to the underside of the balcony.

Pole platform. A platform intended for use by an employee in splicing and maintenance operations in an elevated position adjacent to a pole. It consists of a platform equipped at one end with a hinged chain binder for securing the platform to a pole. A brace from the pole to the underside of the platform is also provided.

Portable ladder. A ladder that can be readily moved or carried.

Positioning system. A body belt or full body harness system configured to allow an employee to be supported on an elevated vertical or inclined surface, such as a wall, and work with both hands free from body support.

Positive locking system. A system that creates a mechanical means of ensuring that the connection or interface between two components will not slip.

Potable water. Water that you can safely drink that meets specific safety standards prescribed by the United States Environmental Protection Agency's *National Interim Primary Drinking Water Regulations*, published in 40 C.F.R. Part 141 and 40 C.F.R. 147.2400.

Powered lowering. The act of controlled lowering of a load by the use of a system or device in the power train, which can control the lowering speed of the winch assembly.

Prime mover. The system that provides the energy to rotate the winch assembly.

Proficient. A thorough competence derived from training and practice.

Proof test. The act of testing the rigging and hoist mechanism whenever newly rigged or after any changes are made to the hoist mechanism or rigging.

Protection from hazardous voltage. The isolation from or de-energizing of equipment to prevent accidental contact by persons or objects on approach to point of danger.

Protective devices or equipment. Those devices such as rubber gloves, rubber boots, rubber blankets, line hose, rubber hoods or other insulating devices or equipment, which are specially designed and appropriate for the electrical protection of employees.

Public highway. Every way, land, road, street, boulevard, and every way or place in the state open as matter of right to public vehicular travel, both inside and outside the limit of cities and towns.

Pulley. A sheave wheel that is grooved on the outer circumference to hold a wire or synthetic rope in place while turning and allows a mechanical advantage for lifting or a change in direction.

Qualified engineer. A professional engineer knowledgeable and experienced in engineering related practices for communication structures and/or lifting systems and rigging components commonly used in the communication industry.

Qualified line-clearance tree trimmer. A tree worker who through related training and on-the-job experience is familiar with the special techniques and hazards involved in line clearance.

Qualified line-clearance tree trimmer trainee. Any employee regularly assigned to a line-clearance tree-trimming crew and undergoing on-the-job training who, in the course of such training, has demonstrated their ability to perform duties safely at their level of training.

Qualified person. One who is familiar with the construction, maintenance, and operation of the equipment and hazards involved, or who has passed a journeyman's examination for the particular branch of the trades with which they may be connected, and trained in the methods necessary to identify and eliminate those hazards. An employee considered to be a qualified person depends on various circumstances in the workplace and on the level of training they have received and demonstrated competency with the tasks required of the job.

Radio frequency radiation (RFR). See nonionizing radiation.

Rated capacity. The load that a winch assembly may handle under given operating conditions and at a known design factor.

Record. Any item, documentation, collection, or grouping of information.

Registered professional engineer (RPE). A registered professional engineer licensed under RCW 18.43.040(1).

Remote site/worksite. A site/worksite that is over thirty minutes from emergency medical services or does not have reliable communications.

Rescue. The process of removing a person from danger, harm, or confinement to a safe location.

Rescue plan. A written process that describes in a general manner how rescue is to be approached under the specified parameters, such as location or circumstances.

Rescue procedure. A written series of logical steps that describes the specific manner in which rescue is to be accomplished.

Rescue system. An assembly of components and subsystems used for rescue.

Rescue system, **one person**. A rescue system intended to bear only the weight of a single person at one time.

Rescue system, **two persons**. A rescue system intended to bear the weight of up to two persons simultaneously.

Retraining. Classroom and/or on-the-job instruction required for continued retention of previously learned materials or skills.

Rigging. Includes, but is not limited to, chains, slings, ropes, pulleys, hooks, and all accompanying hardware for lifting, lowering, suspending, and fastening loads.

Rigging plan. A systematic and detailed presentation showing the equipment and procedures required for a construction process that will provide for the safety of personnel and for the stability of the structure and lifted components.

Rise. The vertical distance from the top of a tread to the top of the next higher tread.

Riser. The vertical part of the step at the back of a tread that rises to the front of the tread above.

Rooster head. A sheave assembly located at the top of a gin pole capable of rotating 360 degrees or fixed that allows a load line to pass through and return to a vertical position.

Rung. A ladder crosspiece used in climbing or descending. Also called a cleat or step.

Safety climb system. An assembly of components whose function is to arrest the fall of a user, including the carrier and its associated attachment elements (e.g., brackets, fasteners), the safety sleeve, and the body support and connectors, wherein the carrier is permanently attached to the climbing face of the ladder or immediately adjacent to the structure.

Safety sleeve. The part of a ladder safety system consisting of the moving component with locking mechanism that travels on the carrier and makes the connection between the carrier and the full body harness.

Safety watch system. A fall protection system as described in WAC 296-32-22555(10), in which a competent person monitors one worker who is engaged in repair work or servicing equipment on low pitch roofs only.

Self-retracting lanyard (SRL). A self-retracting device suitable for applications in which the device is mounted or anchored so a possible free fall is limited to 2 feet (.6 m) or less.

Shall (and "must"**)** as used in this chapter make the provisions mandatory.

Sheath. As applied to sharp tools that effectively covers the tool.

Should (and may) or "it is recommended" are used to indicate the provisions are not mandatory but are recommended.

Side plates. The side plates of sheaves or double plate attachment points that support the sheave.

Side-step ladder. A rail ladder that requires stepping from the ladder in order to reach a landing.

Similar structures. Any structure that holds equipment relevant to the communication industry.

Single ladder. A nonself-supporting portable ladder, nonadjustable in length, consisting of one section. The size is designated by the overall length of the side rail.

Site/worksite. Any location where communications work is performed or equipment is located to include communications tower or antenna and the surrounding land or property where the tower or antenna work is being performed.

Slings. An assembly to be used for lifting when connected to a lifting mechanism. The upper portion of the sling is connected to the lifting mechanism and the lower support the load, such as looped wire rope, synthetic strap, or chain for supporting, cradling, or lifting an object.

Special-purpose ladder. A portable ladder that is made by modifying or combining design or construction features of the general-purpose types of ladders in order to adapt the ladder to special or specific uses.

Special tools and equipment. Includes, but is not limited to, high voltage detector and RFR monitor.

Specular reflection. A mirror-like reflection.

Stair railing. A vertical barrier attached to a stairway with an open side to prevent falls. The top surface of the stair railing is used as a handrail.

Stairs or stairway. A series of steps and landings that lead from: One level or floor to another; to platforms, pits, boiler rooms, crossovers, or around machinery, tanks, and other equipment; and are used more or less continuously or routinely by employees, or only occasionally by specific individuals. A stair or stairway may also be defined as having three or more risers.

Standard safeguard. Safety devices that prevent hazards by their attachment to machinery, appliances, tools, buildings, and equipment. These safeguards must be constructed of metal, wood, or other suitable materials. The department makes the final determination about whether a safeguard is sufficient for its use.

Static brakes. Brakes used once the motion of the drum has come to a complete stop to prevent creeping or slippage. Static brakes are not necessarily separate from the primary braking system or may be redundant in application. A locking device on a primary braking system may be used.

Step. A ladder crosspiece used in climbing or descending. Also called a cleat or rung.

Step bolt. A round or flat member affixed to the structure on one end with the other end having a means to prevent the foot from sliding off.

Strand. A stranded wire used to support a conductor, pole or other structures, such as "guys," etc.

Structure owner. The employer responsible for controlling, operating and maintaining the structure.

Subcontractor. The employer engaged by the owner or general contractor responsible for completing specific portions of a project in accordance with all applicable specifications.

System operator/owner. The person or organization that operates or controls the electrical conductors involved.

Tag line and/or trolley line. A method or system of applying a force to control a load and having the ability to create a space between the load and structure or gin pole.

Tagout. Placing a tagout device on an energy-isolating device using an established procedure to indicate that the energy-isolating device and the machine or equipment being controlled may not be operated until the tagout device is removed.

Tagout device. A prominent warning device, such as a tag and a means of attachment. It can be securely fastened to an energy-isolating device to indicate that the energy-isolating device and the machine or equipment being controlled may not be operated until the tagout device is removed.

Teardown inspection. The complete disassembly, cleaning, inspection, and replacement of all worn, cracked, corroded or distorted parts such as pins, bearings, shafts, gears, brake rotors, brake plates, drum, and base that may affect the operation of the winch assembly.

Telecommunications facility. A site or installation of communication equipment under the exclusive control of an organization providing telecommunications service, that is located outdoors or in a vault, chamber, or a building space used primarily for such installations.

> **Note**: Telecommunication facilities are established, equipped and arranged in accordance with engineered plans for the purpose of providing telecommunications service. They may be located on premises owned or leased by the organization providing telecommunication service, or on the premises owned or leased by others. This definition includes switch rooms (whether electromechanical, electronic, or computer controlled), terminal rooms, power rooms, repeater rooms, transmitter and receiver rooms, switchboard operating rooms, cable vaults, and miscellaneous communications equipment rooms. Simulation rooms of telecommunication facilities for training or developmental purposes are also included.

Telecommunications digger derricks. Rotating or nonrotating derrick structures permanently mounted on vehicles for the purpose of lifting, lowering, or positioning hardware and materials used in telecommunications work.

Telecommunication service. The furnishing of a capability to signal or communicate at a distance by means such as telephone, telegraph, police and fire-alarm, community antenna television, or similar system, using wire, conventional cable, coaxial cable, wave guides, microwave transmission, or other similar means.

Through ladder. A rail ladder that requires stepping through the ladder in order to reach a landing.

TIA maintenance and condition assessment. A comprehensive assessment that addresses the following items – structure condition, finish, lighting, grounding, antennas and lines, appurtenances, insulator condition (if applicable), guy wires condition and tensions, concrete foundations, guyed mast anchors and structure alignment (plumb). Once the assessment occurs, a maintenance plan is adopted, if not corrected during the assessment, to bring the structure within recommended TIA, manufacture or engineer of record guidelines.

Time-weighted average (TWA). An exposure limit, averaged over eight hours that must not be exceeded during an employee's work shift.

Toeboard. A horizontal barrier at floor level erected along all open sides or edges of a floor opening, platform, runway, ramp, or other walking/working surface to prevent materials, tools, or debris from falling onto persons passing through or working in the area below.

Tower and tower site. See "site."

Tower construction. The building of a new tower or structure, or the installation of new equipment on an existing tower or structure.

Tower maintenance work. The replacement or work on any device on an existing tower, the repair of existing equipment, and painting.

Training program. A program designed to provide education through an established system of designing, developing, delivering, monitoring, evaluating, documenting and managing, safety, health and environmental training.

Tread. As used in stairs and stair railings summary (see WAC 296-800-250), the horizontal part of the stair step.

Tread run. As used in stairs and stair railings summary (see WAC 296-800-250), the distance from the front of one stair tread to the front of an adjacent tread.

Tread width. The distance from front to rear of the same tread including the nose, if used.

Trial lift. Testing a specified load weight from ground level to the location of where personnel or equipment are to be hoisted.

Two blocking. An unsafe condition that occurs on a system when the overhaul ball, hook block, or headache ball on the load line comes in contact with the main load sheave.

UL (Underwriters' Laboratories, Inc.) You will find these initials on electrical cords and equipment. The initials mean the cord or equipment meets the standards set by the Underwriters' Laboratories, Inc.

Unvented vault. An enclosed vault in which the only openings are access openings.

Vault. An enclosure above or below ground which personnel may enter, and which is used for the purpose of installing, operating, and/or maintaining equipment and/or cable which need not be of submersible design.

Vented vault. An enclosure, with provision for air changes using exhaust flue stack(s) and low level air intake(s), operating on differentials of pressure and temperature providing for air flow.

Vertical lifeline. A vertical suspended flexible line used with a fall arrestor system to arrest a fall while a worker is in the act of climbing or stationary. When following the manufacturer’s specifications vertical lifelines can be used for other configurations.

Voltage communications. Voltage used for electronic communications equipment to which employees or protective equipment may be subjected.

(a) *High* - over 600 volts to ground--RMS AC or DC or over 1,000 volts RMS across bare parts.

(b) *Medium high* - 151 to 600 volts to ground--RMS AC or DC or 301 to 1,000 volts RMS AC across any bare parts.

Voltage electric supply. The maximum effective line voltage to which the employees or protective equipment may be subjected.

(a) *Low* includes voltages from 100 to 600 volts.

(b) *High* includes voltages 601 volts and above.

Voltage of an effectively grounded circuit. The highest nominal voltage available between any conductor and ground unless otherwise indicated.

Voltage of a circuit not effectively grounded. The highest nominal voltage available between any 2 conductors. If one circuit is directly connected to and supplied from another circuit of higher voltage (as in the case of an autotransformer), both are considered as of the higher voltage, unless the circuit of lower voltage is effectively grounded, in which case its voltage is not determined by the circuit of higher voltage. Direct connection implies electric connection as distinguished from connection merely through electromagnetic or electrostatic induction.

Voltage, nominal. A value assigned to a circuit or system to designate its voltage class (120/240, 480Y/277, 600, etc.). The actual circuit voltage can vary from the value if it is within a range that permits the equipment to continue operating in a satisfactory manner.

Watertight. Constructed so that moisture will not enter the enclosure or container.

Weatherproof. Constructed or protected so that exposure to the weather will not interfere with successful operation. Rainproof, rain tight, or watertight equipment can fulfill the requirements for weatherproof where varying weather conditions other than wetness, such as snow, ice, dust, or temperature extremes, are not a factor.

Well. A walled enclosure around a fixed ladder that provides a person climbing the ladder with the same protection as a cage.

Winch/hoist. A mechanical device for lifting and lowering loads by winding rope onto or off a drum.

Wire rope (cable). A rope made of strands of metal wire; a cord of metal wire used to operate, suspend or pull a mechanism or winch line.

Working length. The length of a nonself-supporting ladder, measured along the rails, from the base support point of the ladder to the point of bearing at the top.

PART A—GENERAL REQUIREMENTS

Note: This part is intended to convey the areas of responsibility for employers when working on telecommunications facilities or locations of any type.

WAC 296-32-22505 Incorporation of standards of national organizations.

When using standards from national organizations and federal agencies that are referenced in these rules, you must use the edition specified in the rule or any edition published after that specified in the rule in order to be in compliance.

WAC 296-32-22510 Safe place standard.

(1) No employer shall require any employee to go or be in any employment or place of employment which is not safe.

(2) No employer shall fail or neglect:

(a) To provide safe access to the worksite.

(b) To provide and use safety devices and safeguards.

(c) To adopt and use methods and processes to render the employment and place of employment safe.

(d) To do every other thing reasonably necessary to protect the life and safety of employees.

WAC 296-32-22511 Host employer/contractor responsibilities.

(1) Host employer responsibilities. Before work begins, the host employer must inform contract employers of:

(a) The characteristics of the host employer's installation that are related to the safety of the work to be performed and are listed in subsection (4)(a) through (e) of this section;

Note: This subsection requires the host employer to obtain information listed in subsection (4)(a) through (e) of this section if it does not have this information in existing records.

(b) Conditions that are related to the safety of the work to be performed, that are listed in subsection (4)(f) through (h) of this section, and that are known to the host employer;

> **Note**: For the purposes of this subsection, the host employer need only provide information to contract employers that the host employer can obtain from its existing records through the exercise of reasonable diligence. This subsection does not require the host employer to make inspections of worksite conditions to obtain this information.

(c) Information about the design and operation of the host employer's installation that the contract employer needs to make the assessments required by this chapter; and

> **Note**: This subsection requires the host employer to obtain information about the design and operation of its installation that contract employers need to make required assessments if it does not have this information in existing records.

(d) Any other information about the design and operation of the host employer's installation that is known by the host employer, that the contract employer requests, and that is related to the protection of the contract employer's employees.

> **Note**: For the purposes of this subsection, the host employer need only provide information to contract employers that the host employer can obtain from its existing records through the exercise of reasonable diligence. This subsection does not require the host employer to make inspections of worksite conditions to obtain this information.

(2) Contract employer responsibilities.

(a) The contract employer must ensure that each of its employees is instructed in the hazardous conditions relevant to the employee's work that the contract employer is aware of as a result of information communicated to the contract employer by the host employer under subsection (1) of this section.

(b) Before work begins, the contract employer must advise the host employer of any unique hazardous conditions presented by the contract employer's work.

(c) The contract employer must advise the host employer of any unanticipated hazardous conditions found during the contract employer's work that the host employer did not mention under subsection (1) of this section. The contract employer must provide this information to the host employer within two working days after discovering the hazardous condition.

(3) Joint host-and contract-employer responsibilities. The contract employer and the host employer must coordinate their work rules and procedures so that each employee of the contract employer and the host employer is protected as required by this section.

(4) Existing characteristics and conditions of the telecommunication site, facility, structure, lines or equipment that are related to the safety of the work to be performed must be determined before work on or near the site, facility, structure, lines or equipment is started. Such characteristics and conditions include, but are not limited to:

(a) The recent condition of poles and/or structures;

(b) Environmental conditions relating to safety;

(c) Any abnormalities compromising the integrity of the system;

(d) Current structure analysis and engineering;

(e) The presence of hazardous energy sources;

(f) The nominal voltages of lines and equipment;

(g) The locations of circuits and equipment, including electric supply lines, communication lines, and fire protective signaling circuits; and

(h) The condition of protective grounds and equipment grounding conductors.

(5) All communication companies and entities operating, constructing and maintaining communication facilities within the state of Washington must design, construct, operate, and maintain their lines and equipment according to the requirements of:

(a) The 2017 National Electrical Safety Code (NESC) (ANSI-C2).

(b) ANSI/TIA 222-G-2005 for structures which have the primary purpose to serve as antenna supporting structures.

(c) ANSI/TIA – 322, 2016 and ANSI/ASSE A10.48, 2016, Telecommunications construction standards.

WAC 296-32-22512 Accident prevention program and safety meeting(s).

(1) Each employer must develop a written formal accident prevention program as outlined in WAC 296-800-140, tailored to the needs of the particular plant or operation and to the type of hazard involved.

> **Note**: The department may be contacted for assistance in developing appropriate programs.

(2) If you employ eleven or more employees on the same shift and at the same location, you must establish a safety committee as required in WAC 296-800-13020.

(3) If you have ten or fewer employees or you have eleven or more employees that work on different shifts with ten or fewer employees on each shift or work in widely separate locations with ten or fewer employees at each location, you may have safety meetings.

(a) The employer must hold safety meetings at least once a month. Meetings must be held at a reasonable time and place as selected by the employer.

(b) The employer must require all employees subject to provisions of this chapter to attend said meetings.

> **Note**: Provided the employees whose presence is otherwise required by reason of an emergency or whose function is such that they cannot leave their station or cease their work without serious determent to the service provided.

(c) Rosters and topics discussed must be kept for each safety meeting and kept for a period of one year.

(4) For field work every employer must conduct crew leader-crew safety meetings and job briefings as follows:

(a) Crew leader-crew safety meetings must be held at the beginning of each job, and at least weekly thereafter.

(b) Crew leader-crew meetings should be tailored to the particular operation.

(c) Crew leader-crew meetings must address the following:

(i) Hazards associated with the job.

(ii) Work procedures involved.

(iii) Special precautions.

(iv) Personal protective equipment requirements.

(d) Attendance must be documented.

(e) Subjects discussed must be documented.

(f) An employee working alone need not conduct a job briefing. However, the employer must ensure that the tasks to be performed are planned as if a briefing were required.

(5) It must be the responsibility of management to develop and maintain a written chemical hazard communication program as required by chapter 296-901 WAC, which will provide information to all employees relative to hazardous chemicals or substances to which they are exposed, or may become exposed, in the course of their employment.

WAC 296-32-22515 First aid.

This section is designed to ensure that all employees in this state are afforded quick and effective first-aid attention in the event of an on-the-job injury.

(1) For fixed locations, the employer must make sure that first-aid trained personnel are available to provide prompt first aid. Designated first-aid trained personnel must have a valid first-aid certificate.

(2) For field work involving two or more employees at a work location, at least two trained persons holding a valid first-aid and CPR certificate must be available.

(3) Employees working alone must have basic first-aid training and hold a valid first-aid certificate. The first-aid certificate can be in electronic format.

(4) The first-aid kits and supplies requirements of the safety and health core rules, WAC 296-800-15020, apply within the scope of this chapter.

(5) When practical, a poster must be fastened and maintained either on or in the cover of each first-aid kit and at or near all phones plainly stating the worksite address or location, and the phone numbers of emergency medical responders for the worksite.

(6) All vehicles used to transport an employee or work crews must be equipped with first-aid supplies.

(7) Any employer with employees who operate, maintain, or construct high voltage lines and equipment or who conduct line-clearance tree trimming in close proximity to high voltage lines and equipment must:

(a) Make an automated external defibrillator available, similar to first-aid kits under WAC 296-800-15020(1), and accessible to employees when work is being performed on, or in close proximity to, high voltage lines and equipment by two or more employees;

(b) Conduct regular maintenance, in accordance with the manufacturer instructions, and conduct annual inspections of the automated external defibrillator to ensure operability and availability; and

(c) Provide training or facilitate the provision of training to ensure there are at least two employees proficient on the proper and safe use of the automated external defibrillator at any site involving work on, or in close proximity to, high voltage lines and equipment. To be considered proficient, an employee must have completed initial or updated training within the previous two years.

(8) For the purposes of this section:

(a) "Close proximity" refer to WAC 296-32-23518 and 296-32-23520.

(b) (b) "High voltage lines and equipment" refers to any energized communication line, electric supply line, or equipment with a voltage of 601 or greater.

WAC 296-22520 Remote communication sites.

(1) During travel and access to remote locations the employer must ensure employees have emergency survival equipment during adverse weather conditions, i.e., winter/extreme winds, which may include, but are not limited to:

(a) Reliable water and food.

(b) Reliable communication plan.

(2) The number of first-aid kits and supplies must reflect the degree of isolation, the number of employees, and the hazards reasonably anticipated at the worksite.

Notes:

- The following should be considered as first-aid supplies required when working at remote sites:
  - Gauze pads (at least 4 x 4 inches).
  - Two large gauze pads (at least 8 x 10 inches).
  - Box adhesive bandages (band-aids).
  - One package gauze roller bandage at least 2 inches wide.
  - Two triangular bandages.
  - Wound cleaning agent such as sealed moistened towelettes.
  - Scissors.
  - At least one blanket.
  - Tweezers.
  - Adhesive tape.
  - Latex gloves.
  - Resuscitation equipment such as resuscitation bag, airway, or pocket mask.
  - Two elastic wraps.
  - Splint.
  - Stretcher.
- For additional information on first-aid kits and supplies see ANSI/ISEA Z308.1–2015.

(3) The employer must maintain the contents of each first-aid kit in a serviceable condition.

Note: Site specific rescue plan requirements are located in WAC 296-32-24005(5).

WAC 296-32-22525 Training.

(1) Employers must provide, document, and ensure that employees have received effective training in all of the processes, procedures, precautions, hazards, equipment, personal protective equipment, and safe work practices pertaining to this chapter and job assignments. The employer must ensure that employees do not engage in any activities related to this chapter and job assignments until the employees have received proper training.

(2) An employer may accept training records or certificates for previous training if the employer:

(a) Confirms the employee has the current training and knowledge applicable to the new employee's job duties, specific procedures, and equipment being used as required by this chapter.

(b) Uses an examination or interview to make an initial determination that the employee understands the relevant safety related work practices before the employee performs any work covered by this chapter.

(c) Supervises the employee closely until that employee has demonstrated proficiency as required by this chapter.

(3) The employer must determine, through regular supervision and through inspections conducted on at least an annual basis that each employee is complying with the safety-related work practices required by this chapter.

(4) The employer must maintain a training program that includes a list of the subject courses and the types of personnel required to receive such instruction. A written description of the training program and a record of employees who have received such training must be maintained for five years and must be made available upon request to the director of the department of labor and industries, or his/her authorized representative. The individual who conducts the training must document and verify completion of training.

(5) Such training must, where appropriate, include the following subjects:

(a) Detailed training on specific work being performed by employees.

(b) Recognition and avoidance of dangers relating to encounters with harmful substances and related hazards, and animal, insect, or plant life.

(c) Procedures to be followed in emergency situations.

(6) "Retraining." When the employer has reason to believe that any employee who has already been trained does not have the understanding and skill, the employer must retrain that employee. Circumstances where retraining is required include, but are not limited to, situations where:

(a) Changes in the workplace render previous training obsolete;

(b) If new technology, new types of equipment, changes in procedures or job site necessitate the use of safety-related work practices that are different from those which the employee would normally use;

(c) If the supervision and routine inspections indicate that the employee is not complying with the safety-related work practices required by this chapter;

(d) Inadequacies in an employee's knowledge of safety-related work practices or use of equipment indicate that the employee has not retained the requisite understanding or skill; or

(e) If an employee is involved in an accident or near miss incident.

(f) Tasks that are performed less often than once per year will necessitate retraining before the performance of the work practices involved.

WAC 296-32-22530 Employee protection in public work areas.

(1) Before work begins in the vicinity of vehicular or pedestrian traffic that may endanger employees:

(a) Traffic control signs, devices, and barriers must be positioned and used according to the requirements of chapter 296-155 WAC, Part E.

(b) When flaggers are used, employers, responsible contractors and/or project owners must comply with the requirements of WAC 296-155-305.

(2) During hours of darkness, warning lights must be prominently displayed and excavated areas must be enclosed with protective barricades.

(3) When work exposes energized or moving parts that are normally protected, danger signs must be displayed and barricades erected to warn other personnel in the area.

(4) The employer must ensure that an employee finding any crossed or fallen wires which create or may create a hazardous situation at the work area:

(a) Remains on guard or adopts other adequate means to warn other employees of the danger; and

(b) Has notified the proper authority or controlling utility at the earliest practical moment.

WAC 296-32-22535 Facilities requirements.

(1) Buildings containing telecommunications facilities. See Table 1.

(a) Illumination. Lighting in telecommunication facilities must be provided in an amount such that continuing work operations, routine observations, and the passage of employees can be carried out in a safe and healthful manner.

(b) For specific tasks in facilities, such as splicing cable and the maintenance and repair of equipment frame lineups, the employer must install permanent lighting or portable supplemental lighting to attain a higher level of illumination.

(c) Minimum standards of illumination for industrial interiors must comply with WAC 296-800-210.

(d) Illumination of field work. Whenever natural light is insufficient to illuminate the worksite, artificial illumination must be provided to enable the employee to perform the work safely.

Table 1-Lighting Table

Activity	Minimum acceptable average lighting level in an area: **(Foot-candles)**	Any one single measurement used to determine the average lighting level* cannot be less than: **(Foot-candles)**
Indoor task	10	5
Outdoor task	5	2.5
Nontask activities for both indoor and outdoor	3	1.5

* Lighting levels must be measured at thirty inches above the floor/working surface at the task.

(2) Working spaces.

(a) Space must be provided for access to all medium high and high voltage equipment. The width of the working space in front of the equipment must be the width of the equipment or thirty inches, whichever is greater.

(b) Every structure, new or old, designed for human occupancy must be provided with exits to permit the prompt escape of occupants in case of fire or other emergency. The means of egress must be a continuous and unobstructed way of exit travel from any point in a building or structure to a public way and consist of three separate and distinct parts; the way of exit access, the exit and way of exit discharge. A means of egress comprises the vertical and horizontal ways of travel and must include intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies, escalators, horizontal exits, courts and yards.

(c) "Maintenance aisles," or "wiring aisles," between equipment frame lineups are working spaces and are not a means of egress for purposes of WAC 296-800-310.

(3) Special doors.

(a) When blastproof or power actuated doors are installed in specially designed hard site security buildings and spaces, they must be designed and installed so that they can be used as a means of egress in emergencies.

(b) When high voltage apparatus is located in a supplementary enclosure, interlocks must be provided on all access doors.

(c) Warning signs must be provided, which are visible both when the guard or cover is in place or removed.

(4) Power plant machinery in telecommunications facilities.

(a) When power plant machinery is operated with commutators and couplings uncovered, the adjacent housing must be clearly marked to alert personnel to the rotating machinery.

(b) "Employee working" signs, or similar wording must be placed on switches associated with motors or generators under repair.

(c) Before opening any power circuit, the load must be reduced.

(d) All power switches on power panels and disconnects must be in an open position and generator starting mechanisms disabled before maintenance or repair.

(e) When working on the brushes of a machine in operation, employees must use care not to break a circuit. When it is necessary to remove a brush from the holder, the machine must be shut down.

(f) Only fuse pullers specifically designed for that purpose must be used when replacing cartridge type fuses.

(5) Battery handling.

(a) Eye protection devices which provide side as well as frontal eye protection for employees must be provided when measuring storage battery specific gravity or handling electrolyte and the employer must ensure that such devices are used by the employees.

(b) The employer must ensure that appropriate acid resistant gloves, face shields, and aprons are worn for protection against spattering.

(c) Facilities for quick drenching or flushing of the eyes and body meeting the requirements of WAC 296-800-15030 must be provided while servicing or handling batteries, unless the storage batteries are of the enclosed type and equipped with explosion proof vents, in which case sealed water rinse or neutralizing packs may be substituted for the quick drenching or flushing facilities. Maintenance free batteries do not require an emergency eye wash if no electrolyte or water is added to the battery.

(d) Employees assigned to work with storage batteries must be instructed in emergency procedures such as dealing with accidental acid spills.

(e) Electrolyte (acid or base, and distilled water) for battery cells must be mixed in a well-ventilated room. Acid or base must be poured gradually, while stirring, into the water. Water must never be poured into concentrated (greater than 75 percent) acid solutions. Electrolyte must never be placed in metal containers nor stirred with metal objects.

(f) When taking specific gravity readings, the open end of the hydrometer must be covered with an acid resistant material while moving it from cell to cell to avoid splashing or throwing the electrolyte.

(g) Ventilation must be provided to ensure diffusion of the gases from the battery to prevent the accumulation of an explosive type mixture.

(h) Racks and trays must be substantial and treated to be resistant to the electrolyte.

(i) Floors must be of acid resistant construction or be protected from acid accumulation.

(6) Transportation and storage of compressed gas cylinders.

(a) Highway mobile vehicles and trailers stored in garages in accordance with WAC 296-24-47513(4)(b), equipped to carry more than one LP-gas container, but the total capacity of LP-gas containers per work vehicle stored in garages must not exceed 100 pounds of LP-gas.

(b) All container valves, or other means that positively seals the container, must be closed when not in use.

(c) Special compartments, racks, or blocking must be provided and used to prevent cylinder movement when using or transporting nitrogen cylinders.

(d) Regulators must be removed or guarded before a cylinder is transported.

Notes:

1. Welding and cutting requirements are located in chapter 296-155 WAC, Part H.
2. Compressed gas and compressed gas equipment requirements are located in chapter 296-24 WAC, Parts I and K.

(7) Potable water.

(a) An adequate supply of potable water must be provided in all places of employment.

(b) Portable containers used to dispense drinking water must be capable of being tightly closed and equipped with a tap. Water must not be dipped from containers.

(c) Any container used to distribute drinking water must be clearly marked as to the nature of its contents and not used for any other purpose.

(d) A common drinking cup is prohibited.

(e) Where single service cups (to be used but once) are supplied, both a sanitary container for the unused cups and a receptacle for disposing of the used cups must be provided.

(f) All water containers used to furnish drinking water must be thoroughly cleaned at least once each week or more often as conditions require.

(g) The requirements of this subsection do not apply to mobile crews or to normally unattended work locations as long as employees working at these locations have transportation immediately available within the normal course of their duties, to nearby facilities otherwise meeting the requirements of this section.

WAC 296-32-22540 Tools and personal protective equipment – General.

(1) Personal protective equipment (PPE) – Hazard assessment. The employer must identify hazards or potential hazards in the workplace and determine if PPE is necessary on the job as required by WAC 296-800-16005 and 296-800-16010.

(2) PPE, protective devices and special tools needed for the work of employees must be provided and the employer must ensure that they are used by employees.

(a) PPE must be provided at no cost to the employee. See WAC 296-800-16020, Table X: Employer responsibility for providing PPE.

(b) Before each day's use the employer must ensure that these personal protective equipment devices, tools, and equipment are carefully inspected by a competent person to ascertain that they are in good condition.

(c) Tools found to be defective must be taken out of service.

(d) Metal tapes, ladders and ropes.

(i) Metal measuring tapes, metal ladders, metal measuring ropes, or tapes containing conductive strands must not be used when working near exposed energized parts.

(ii) Where it is necessary to measure clearances from energized parts, only nonconductive devices must be used.

(e) The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirements of this chapter is prohibited. Such machinery, tool, material, or equipment must either be identified as unsafe by tagging or locking the controls to render them inoperable or must be physically removed from its place of operation.

(3) Head protection.

(a) Head protection must meet the requirements of ANSI Z89.1-2014 American National Standard for Industrial Head Protection.

(b) Make sure employees wear appropriate protective helmets when exposed to hazards that could cause a head injury.

> **Note**: Example of this type of hazard include:
>
> 1. Flying or propelled objects.
> 2. Falling objects or materials.
> 3. Electrical hazards, Class E electrically rated.

(c) Tower workers.

(i) Must wear ANSI Z89.1-2014 Type I Class C climbing helmets while climbing and working at elevations.

(ii) Must wear head protection meeting the requirements of ANSI Z89.1-2014 while performing ground work with overhead hazard exposure.

(4) Eye protection. Employees must use eye and/or face protection where there is a possibility of injury that can be prevented by such personal protective equipment. In such cases, employers must make conveniently available a type of protection suitable for the work to be performed, and employees must use such protection.

> **Note**: See WAC 296-800-160 for additional personal protective equipment requirements.

(5) Foot protection.

(a) Substantial footwear, made of leather or other equally firm material, must be worn by employees in any occupation in which there is a danger of injury to the feet through falling or moving objects, or from burning, scalding, cutting, penetration, or like hazard.

(i) The soles and heels of such footwear must be of a material that will not create a slipping hazard.

(ii) Shoes made of leather or other firm material that have soft athletic-type soles which would protect employees from foot injuries and at the same time, provide soft and firm footing while working under specialty requirements or with specialty materials are acceptable if meeting safety shoe requirements established by OSHA or ANSI.

(iii) Footwear that has deteriorated to a point where it does not provide the required protection must not be used.

(b) Traditional tennis shoes, shoes with canvas tops, or thin or soft soled athletic shoes, open-toed sandals, slippers, dress shoes or other similar types shoes must not be worn. Soft or athletic-type soles with uppers of leather or other substantial material may be used where firm footing is desired and where minimal danger of injury to feet from falling or moving objects.

(c) Safety-toe footwear for employees must meet the requirements and specifications in ASTM F2413-2011.

(6) Portable power equipment.

(a) All portable power equipment used in the telecommunications industry must be appropriately grounded.

(b) Nominal 120V, or less, portable generators used for providing power at work locations do not require grounding if the output circuit is completely isolated from the frame of the unit.

(c) Grounding must be omitted when using soldering irons, guns or wire-wrap tools on telecommunication circuits.

(7) Vehicle-mounted utility generators. Vehicle-mounted utility generators used for providing nominal 240V AC or less for powering portable tools and equipment need not be grounded to earth if all of the following conditions are met:

(a) One side of the voltage source is solidly strapped to the metallic structure of the vehicle;

(b) Grounding-type outlets are used, with a "grounding" conductor between the outlet grounding terminal and the side of the voltage source that is strapped to the vehicle;

(c) All metallic encased tools and equipment that are powered from this system are equipped with 3-wire cords and grounding-type attachment plugs, except as designated in this subsection.

(d) Under the following conditions the frame of a vehicle may serve as the grounding electrode for a system supplied by a generator located on the vehicle:

(i) The frame of the generator is bonded to the vehicle frame;

(ii) The generator supplies only equipment located on the vehicle and/or cord-connected and plug-connected equipment though receptacles mounted on the vehicle or on the generator;

(iii) The noncurrent-carrying metal parts of equipment and the equipment grounding conductor terminals of the receptacles are bonded to the generator frame; and

(iv) The system complies with all other provisions of this section.

(e) Neutral conductor bonding. A neutral conductor must be bonded to the generator frame if the generator is a component of a separately derived system. No other conductor need be bonded to the generator frame.

(8) Portable lights, tools and appliances. When operated from commercial power such metal parts of these devices must be grounded, unless these tools or appliances are protected by a system of double insulation, or its equivalent. Where such a system is employed, the equipment must be distinctively marked to indicate double insulation.

(9) Fire extinguishers.

(a) Fire extinguishers must be provided for the protection of both the building structure and the occupancy hazards contained therein conforming to WAC 296-800-300.

(b) All vehicles in the field must have fire extinguishers when performing work that could cause an ignition source.

Note: Ignition sources include the following, but are not limited to:

- Welding;
- Cutting;
- Grinding;
- Generator use;
- CAD welding;
- Propane torches; or
- Smoking.

(c) Employees required to use fire extinguishers must be trained on the location and operation of fire extinguishers.

(d) Any fire extinguisher showing defects must be removed from service.

(e) Fire extinguishers must be thoroughly inspected monthly to ensure serviceability.

(f) Fire extinguishers must be inspected annually, recharged, or repaired to ensure reliability.

(g) Each fire extinguisher must have a durable tag securely attached to show the maintenance or recharge date and the initials or signature of the person performing this service.

Note: For additional requirements relating to portable fire extinguishers see WAC 296-800-300.

WAC 296-32-22545 Capstan and cathead hoists.

This section is to provide the minimum requirements for using a capstan hoist for overhead lifting or horizontal pulling during the construction and/or maintenance of communication equipment.

(1) All capstan hoist mechanisms must meet the applicable requirements for design, construction, installation, testing, inspection, maintenance and operations as prescribed by the manufacturer or the qualified person designing the system.

(2) Catheads or capstans must not be used to raise or lower personnel or to lift loads directly over personnel that are not directly involved with the lift.

(3) Training. Individuals operating a capstan hoist must be qualified through documented training and demonstrated proficiency. Training must include, but not be limited to, the following elements:

(a) Anchorage loading;

(b) Load testing;

(c) Electrical loading;

(d) Capstan load rating;

(e) Types of synthetic rope;

(f) Synthetic rope breaking strengths and safety factors;

(g) Synthetic rope inspection;

(h) Synthetic rope knots;

(i) Capstan head alignment;

(j) Inspection and maintenance;

(k) Tag line force;

(l) Solving overlap problems.

(4) The operator will be properly trained and proficient on the operation of catheads or capstans.

(a) The operator must not wear loose clothing.

(b) The operator must not stand in the bite of the pull line.

(5) Foot-operated controls must be located or guarded so that unintentional movement to the "ON" position is not possible.

(6) Inspection. The overall system must be inspected daily before each use. At a minimum, the inspection must include the drive train, drum and the anchorage.

(7) During operations, the following requirements must be met:

(a) The electrical drive motor has the proper amount of amperage to operate efficiently with the correct size of breaker;

(b) The extension cords used are the proper size and length;

(c) The hydraulic system has proper pressure to ensure all the valves are operating properly and the hydraulic hoses are in good condition;

(d) The gas engine is maintained properly and in good working order.

(8) Anchorage.

(a) There must be an appropriate anchorage for the size of the unit being used and the maximum expected load to be lifted.

(b) The anchorage must be load tested before operations start to 1.5 times the maximum anticipated hoist line pull, or the anchorage must be qualified based on engineering calculations utilizing a minimum safety factor of two.

(9) Rope.

(a) Only manufacturer approved rope or line must be used;

(b) Natural fiber rope must not be used;

(c) Polypropylene material must not be used;

(d) Frozen rope must not be used; and

(e) All ropes must be maintained and in good condition.

(f) Ropes must not be used if there is exposure to corrosive substances, chemicals or heat;

(g) A splice must not be able to contact the cathead friction service (drum);

(h) Flat mule tape or its equivalent must not be used unless approved by the manufacturer.

(10) Rope replacement on the drum. In all situations the manufacturer's recommendations must be followed and at a minimum the rope must be placed as follows:

(a) A minimum of four wraps are required on the drum;

(b) The rope wraps must be installed on the drum with the load side on the inside of the drum closest to the motor;

(c) The pull side will be on the outside furthest away from the motor;

(d) The load weight lifted is defined by the number of rope wraps on the drum, type of rope material and the diameter of the rope.

(11) Rope replacement during operations.

(a) During operations there must be a plan for excess rope so that it does not get entangled with other objects or your feet.

(b) Before lifting begins, there must be a plan on how to tie off the load to hold it in place.

(12) Load test.

(a) A load test of the gross load must be performed.

(b) A rigging plan is required when performing vertical lifts per WAC 296-32-24020.

(c) A separate load test must be performed if the system is altered or rearranged.

(13) Communications and hand signals. The means of hand signals and communication will be determined before the job starts. The operator is responsible for the load during operations. The operator must have a clear view of the load being lifted and/or the hand signals of the person controlling the load. If there is no clear view, then an alternate method of communication must be used.

WAC 296-32-22550 Rubber insulating equipment.

(1) Rubber insulating equipment designed for the voltage levels to be encountered must be provided and the employer must ensure that they are used by employees as required by this section. The requirements of WAC 296-24-980 Safeguards for personnel protection, must be followed except for Table 2.

(2) The employer is responsible for periodic retesting of all insulating gloves, blankets, and other rubber insulating equipment. This retesting must be electrical, visual and mechanical. The following maximum retesting intervals must apply:

Table - 2

Gloves, Blankets and Other Insulating Equipment	Natural Rubber (Months)	Synthetic Rubber (Months)
New	12	18
Reissued	9	15

(3) Protector for gloves. Approved protectors must be worn at all times over rubber gloves. Inner liners may be worn if desired.

Exception*:*

Protector gloves need not be used with Class O gloves, under limited-use conditions less than 250 volts, where small equipment and parts manipulation necessitate unusually high finger dexterity.

Note: Extra care is needed in the visual examination of the glove and in the avoidance of handling sharp objects.

(4) Gloves and blankets must be marked to indicate compliance with the retest schedule and must be marked with the date the next test date is due. Any rubber gloves found to be defective must be removed from service and marked as being defective.

(5) Patching rubber goods is prohibited; rubber protective equipment must not be vulcanized or patched.

(6) A pair of rubber gloves must be issued and assigned to each employee when required to work on or be exposed to energized parts. Employees must not use or share gloves issued to another employee.

(7) Rubber gloves when not in use must be carried in an approved bag provided and designed for that purpose. It must be provided by the employer and made available to the employees.

WAC 296-32-22555 General fall protection.

(1) The employer must ensure that all surfaces on which employees will be working or walking on are structurally sound and will support them safely prior to allowing employees to work or walk on them.

(2) Inspection criteria.

(a) All components (including hardware, lanyards, and positioning harnesses or full body harnesses depending on which system is used) of personal fall arrest systems, personal fall restraint systems and positioning device systems must be inspected prior to each use according to manufacturer's specifications for mildew, wear, damage, and other deterioration. Defective components must be removed from service if their function or strength has been adversely affected.

(b) Safety nets must be inspected at least once a week according to manufacturer's specifications for wear, damage, and other deterioration. Safety nets must also be inspected after any occurrence which could affect the integrity of the safety net system. Defective components must be removed from service. Defective nets must not be used.

(3) Personal fall arrest systems, personal fall restraint systems, positioning device systems, and their components must be used only for employee protection and not to hoist materials.

Figure 2

Examples of what personal fall arrest, personal fall restraint and positioning device systems look like:

(4) Fall protection required regardless of height.

(a) Regardless of height, open sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment, such as water towers or roof tops and material handling equipment, and similar hazards must be guarded with a standard guardrail system.

(b) Floor holes or floor openings, into which persons can accidentally walk, must be guarded by either a standard railing with standard toe board on all exposed sides, or a cover of standard strength and construction that is secured against accidental displacement. While the cover is not in place, the floor hole opening must be protected by a standard railing.

> **Note**: Requirements for when guarding floor openings at heights of four feet or more are located in subsection (5)(d) of this section.

(c) Regardless of height, employees must be protected from falling into or onto impalement hazards, such as: Reinforcing steel (rebar), or exposed steel or wood stakes used to set forms.

(5) Fall protection required at four feet or more.

(a) The employer must ensure that the appropriate fall protection system is provided, installed, and implemented according to the requirements in this part when employees are exposed to fall hazards of four feet or more to the ground or lower level when on a walking/working surface, towers, poles, or communication structures.

(b) Guarding of walking/working surfaces with unprotected sides and edges. Every open sided walking/working surface or platform four feet or more above adjacent floor or ground level must be guarded by one of the following fall protection systems.

(i) A standard guardrail system, or the equivalent, as specified in subsection (9)(b) of this section, on all open sides, except where there is entrance to a ramp, stairway, or fixed ladder. The railing must be provided with a standard toe board wherever, beneath the open sides, persons can pass, there is moving machinery, or there is equipment with which falling materials could create a hazard.

(A) When employees are using stilts, the height of the top rail or equivalent member of the standard guardrail system must be increased (or additional railings may be added) an amount equal to the height of the stilts while maintaining the strength specifications of the guardrail system.

(B) Where employees are working on platforms above the protection of the guardrail system, the employer must either increase the height of the guardrail system as specified in (b)(i)(A) of this subsection, or select and implement another fall protection system as specified in (c), (d), (e), (f), or (g) of this subsection.

(C) When guardrails must be temporarily removed to perform a specific task, the area must be constantly attended by a monitor until the guardrail is replaced. The only duty the monitor must perform is to warn persons entering the area of the fall hazard.

(D) Guardrails and toe boards may be omitted on distribution frame mezzanine platforms to permit access to equipment. This exemption applies only on the side or sides of the platform facing the frames and only on those portions of the platform adjacent to equipped frames.

(ii) A fall restraint system;

(iii) A personal fall arrest system;

(iv) A safety net system;

(v) A catch platform; and

(vi) A warning line.

(c) Guarding of ramps, runways, and inclined walkways.

(i) Ramps, runways, and inclined walkways that are four feet or more above the ground or lower level must be equipped with a standard guardrail system or the equivalent, as specified in subsection (9)(b) of this section, along each open side. Wherever tools, machine parts, or materials are likely to be used on the runway, a toe board must also be installed on each open side to protect persons working or passing below.

(ii) Runways used exclusively for special purposes may have the railing on one side omitted where operating conditions necessitate such omission, provided the falling hazard is minimized by using a runway not less than eighteen inches wide.

(d) Guarding of floor openings.

(i) Floor openings must be guarded by one of the following fall restraint systems.

(A) A standard guardrail system, or the equivalent, as specified in subsection (9)(b) of this section, on all open sides, except where there is entrance to a ramp, stairway, or fixed ladder. The railing must be provided with a standard toe board wherever, beneath the open sides, persons can pass, or there is moving machinery, or there is equipment with which falling materials could create a hazard.

(B) A cover, as specified in subsection (9)(c) of this section.

(C) A warning line system erected at least fifteen feet from all unprotected sides or edges of the floor opening and meets the requirements of subsection (9)(d) of this section.

(D) If it becomes necessary to remove the cover, the guardrail system, or the warning line system, then an employee must remain at the opening until the cover, guardrail system, or warning line system is replaced. The only duty the employee must perform is to prevent exposure to the fall hazard by warning persons entering the area of the fall hazard.

(ii) Ladderway floor openings or platforms must be guarded by standard guardrail system with standard toe boards on all exposed sides, except at entrance to opening, with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.

(iii) Hatchways and chute floor openings must be guarded by one of the following:

(A) Hinged covers of standard strength and construction and a standard guardrail system with only one exposed side. When the opening is not in use, the cover must be closed or the exposed side must be guarded at both top and intermediate positions by removable standard guardrail systems.

(B) A removable standard guardrail system with toe board on not more than two sides of the opening and fixed standard guardrail system with toe boards on all other exposed sides. The removable railing must be kept in place when the opening is not in use and must be hinged or otherwise mounted so as to be conveniently replaceable.

(iv) Wherever there is a danger of falling through an unprotected skylight opening, or the skylight has been installed and is not capable of sustaining the weight of a minimum of eight hundred pounds or the maximum potential load with a safety factor of four, standard guardrails must be provided on all exposed sides in accordance with subsection (9)(b) of this section or the skylight must be covered in accordance with subsection (9)(c) of this section. Personal fall arrest equipment may be used as an equivalent means of fall protection when worn by all employees exposed to the fall hazard.

(v) Pits and trap door floor openings must be guarded by floor opening covers of standard strength and construction. While the cover is not in place, the pit or trap openings must be protected on all exposed sides by removable standard guardrail system.

(vi) Manhole floor openings must be guarded by standard covers which need not be hinged in place. While the cover is not in place, the manhole opening must be protected by standard guardrail system.

(e) Guarding of wall openings.

(i) Wall openings, from which there is a fall hazard of four feet or more, and the bottom of the opening is less than thirty-nine inches above the working surface, must be guarded as follows:

(A) When the height and placement of the opening in relation to the working surface is such that either a standard rail or intermediate rail will effectively reduce the danger of falling, one or both must be provided;

(B) The bottom of a wall opening, which is less than four inches above the working surface, regardless of width, must be protected by a standard toe board or an enclosing screen either of solid construction or as specified in subsection (9)(b)(iii) of this section.

(ii) An extension platform, outside a wall opening, onto which materials can be hoisted for handling must have standard guardrails on all exposed sides or equivalent. One side of an extension platform may have removable railings in order to facilitate handling materials.

(iii) When a chute is attached to an opening, the provisions of (d)(iii) of this subsection must apply, except that a toe board is not required.

(f) Fall protection during form and rebar work. When exposed to a fall height of four feet or more, employees placing or tying reinforcing steel on a vertical face are required to be protected by personal fall arrest systems, safety net systems, or positioning device systems.

(g) Fall protection on steep pitched and low pitched roofs.

Steep pitched roofs. Regardless of the work activity, employers must ensure that employees exposed to fall hazards of four feet or more while working on a roof with a pitch greater than four in twelve use one of the following:

(i) Fall restraint system. Warning line systems are prohibited on steep pitched roofs;

(ii) Fall arrest system; or

(iii) Positioning device system.

(h) Low pitched roofs. Employers must ensure that employees exposed to fall hazards of four feet or more while engaged in telecommunications work on low pitched roofs use one of the following:

(i) Fall restraint system;

(ii) Fall arrest system;

(iii) Positioning device system;

(iv) Warning line system;

(v) Safety watch system, see subsection (10) of this section for safety watch specifications.

(i) Hazardous slopes. Employees exposed to falls of four feet or more while working on a hazardous slope must use personal fall restraint systems or positioning device systems.

(j) Working on any surface four feet or more that does not meet the definition of a walking/working surface not already covered in this subsection (5).

(6) Excavation and trenching operations.

(a) Exceptions. Fall protection is not required at excavations four feet or more when employees are:

(i) Directly involved with the excavation process and on the ground at the top edge of the excavation; or

(ii) Working at an excavation site where appropriate sloping of side walls has been implemented as the excavation protective system.

(b) Fall protection is required for employees standing in or working in the affected area of a trench or excavation exposed to a fall hazard of ten feet or more and:

(i) The employees are not directly involved with the excavation process; or

(ii) The employees are on the protective system or any other structure in the excavation.

Note: Persons considered directly involved in the excavation process include:

1. Foreman of the crew.
2. Signal person.
3. Employee hooking on pipe or other materials.
4. Grade person.
5. State, county, or city inspectors inspecting the excavation or trench.
6. An engineer or other professional conducting a quality-assurance inspection.

(7) Fall protection work plan. The employer must develop and implement a written fall protection work plan including each area of the work place where the employees are assigned and where fall hazards of ten feet or more exist.

(a) The fall protection work plan must:

(i) Identify all fall hazards in the work area;

(ii) Describe the method of fall arrest or fall restraint to be provided;

(iii) Describe the proper procedures for the assembly, maintenance, inspection, and disassembly of the fall protection system to be used;

(iv) Describe the proper procedures for the handling, storage, and securing of tools and materials;

(v) Describe the method of providing overhead protection for employees who may be in, or pass through the area below the worksite;

(vi) Describe the method for prompt, safe removal of injured employees; and

(vii) Be available on the job site for inspection by the department.

(b) Prior to permitting employees into areas where fall hazards exist the employer must ensure employees are trained and instructed in the items described in (a)(i) through (vii) of this subsection.

(8) Fall arrest specifications. Fall arrest protection must conform to the following provisions:

(a) Personal fall arrest system must consist of:

(i) A full body harness must be used.

(ii) Full body harness systems or components subject to impact loading must be immediately removed from service and must not be used again for employee protection unless inspected and determined by a competent person to be undamaged and suitable for reuse.

(iii) Anchorages for full body harness systems must be capable of supporting (per employee):

(A) Three thousand pounds when used in conjunction with:

(I) A self-retracting lifeline that limits the maximum free fall distances to two feet or less; or

(II) A shock absorbing lanyard that restricts the forces on the body to nine hundred pounds or less.

(B) Five thousand pounds for all other personal fall arrest system applications, or they must be designed, installed, and used:

(I) As a part of a complete personal fall arrest system which maintains a safety factor of at least two; and

(II) Under the supervision of a qualified person.

(iv) When stopping a fall, personal fall arrest systems must:

(A) Be rigged to allow a maximum free fall distance of six feet so an employee will not contact any lower level;

(B) Limit maximum arresting force on an employee to one thousand eight hundred pounds (8 kN);

(C) Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to three and one-half feet (1.07 m); and

(D) Have sufficient strength to withstand twice the potential impact energy of an employee free falling a maximum distance of six feet (1.8 m).

Note: Shock absorbers that meet the requirements of ANSI Z359.13-2013 that are used as part of a personnel fall arrest system in accordance with manufacturer's recommendations and instructions for use and installation will limit the maximum arresting forces on an employee's body to one thousand eight hundred pounds or less.

(v) All safety lines and lanyards must be protected against being cut or abraded.

(vi) The attachment point of the full body harness must be located in the center of the wearer's back near shoulder level, or above the wearer's head.

(vii) Hardware must be drop forged, pressed or formed steel, or made of materials equivalent in strength.

(viii) Hardware must have a corrosion resistant finish, and all surfaces and edges must be smooth to prevent damage to the attached full body harness or lanyard.

(ix) When vertical lifelines (droplines) are used, not more than one employee shall be attached to any one lifeline.

Note: The system strength needs in the following items are based on a total combined weight of employee and tools of no more than three hundred ten pounds. If combined weight is more than three hundred ten pounds, appropriate allowances must be made or the system will not be in compliance. For more information on system testing, see chapter 296-880 WAC, Unified safety standards for fall protection.

(x) Vertical lifelines (droplines) must have a minimum breaking strength of five thousand pounds (22.2 kN), except that self-retracting lifelines and lanyards which automatically limit free fall distance to two feet (.61 m) or less must have a minimum breaking strength of three thousand pounds (13.3 kN).

(xi) Horizontal lifelines must be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two.

(xii) Droplines or lifelines used on rock scaling operations, or in areas where the lifeline may be subjected to cutting or abrasion, must be a minimum of seven-eighths inch wire core manila rope or equivalent. For all other lifeline applications, a minimum of three-fourths inch manila rope or equivalent, with a minimum breaking strength of five thousand pounds, must be used.

(xiii) Lanyards must have a minimum breaking strength of five thousand pounds (22.2 kN).

(xiv) All components of full body harness systems whose strength is not otherwise specified in this subsection must be capable of supporting a minimum fall impact load of five thousand pounds (22.2 kN) applied at the lanyard point of connection.

(xv) D-rings and snap hooks must be proof-tested to a minimum tensile load of three thousand six hundred pounds (16 kN) without cracking, breaking, or taking permanent deformation.

(xvi) Snap hooks must be a locking type snap hook designed and used to prevent disengagement of the snap hook by the contact of the snap hook keeper by the connected member.

(xvii) Unless the snap hook is designed for the following connections, snap hooks must not be engaged:

(A) Directly to the webbing, rope or wire rope;

(B) To each other;

(C) To a D-ring to which another snap hook or other connector is attached;

(D) To a horizontal lifeline; or

(E) To any object which is incompatibly shaped or dimensioned in relation to the snap hook such that unintentional disengagement could occur by the connected object being able to depress the snap hook keeper and release itself.

(b) Safety net systems. Safety net systems and their use must comply with the following provisions:

(i) Safety nets must be installed as close as practicable under the surface on which employees are working, but in no case more than thirty feet (9.1 m) below such level unless specifically approved in writing by the manufacturer. The potential fall area to the net must be unobstructed.

(ii) Safety nets must extend outward from the outermost projection of the work surface as follows in Table 3:

Table 3

Vertical distance from working levels to horizontal plane of net	Minimum required horizontal distance of outer edge of net from the edge of the working surface
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet	13 feet

(iii) Safety nets must be installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to an impact force equal to the drop test specified in (b)(iv) of this subsection.

(iv) Safety nets and their installations must be capable of absorbing an impact force equal to that produced by the drop test.

(A) Except as provided in (b)(iv)(B) of this subsection, safety nets and safety net installations must be drop-tested at the job site after initial installation and before being used as a fall protection system, whenever relocated, after major repair, and at six-month intervals if left in one place. The drop-test must consist of a four hundred pound (180 kg) bag of sand 30 ± 2 inches (76 ± 5 cm) in diameter dropped into the net from the highest walking/working surface at which employees are exposed to fall hazards, but not from less than forty-two inches (1.1 m) above that level.

(B) When the employer can demonstrate that it is unreasonable to perform the drop-test required by (b)(iv)(A) of this subsection, the employer (or a designated competent person) must certify that the net and net installation is in compliance with (b)(iii) and (iv)(A) of this subsection by preparing a certification record prior to the net being used as a fall protection system. The certification record must include an identification of the net and net installation for which the certification record is being prepared; the date that it was determined that the identified net and net installation were in compliance with (b)(iii) of this subsection and the signature of the person making the determination and certification. The most recent certification record for each net and net installation must be available at the job site for inspection.

(v) Materials, scrap pieces, equipment, and tools which have fallen into the safety net must be removed as soon as possible from the net and at least before the next work shift.

(vi) The maximum size of each safety net mesh opening must not exceed thirty-six square inches (230 cm^2) nor be longer than six inches (15 cm) on any side, and the opening, measured center-to-center of mesh ropes or webbing, must not be longer than six inches (15 cm). All mesh crossings must be secured to prevent enlargement of the mesh opening.

(vii) Each safety net (or section of it) must have a border rope or webbing with a minimum breaking strength of five thousand pounds (22.2 kN).

(viii) Connections between safety net panels must be as strong as integral net components and must be spaced not more than six inches (15 cm) apart.

(c) Catch platforms.

(i) A catch platform must be installed within four vertical feet of the work area.

(ii) The catch platform's width must be a minimum of forty-five inches wide and must be equipped with standard guardrails and toe boards on all open sides and must be capable of supporting a minimum of eight hundred pounds or the maximum potential load, with a safety factor of four.

(9) Fall restraint specifications. Fall restraint protection must conform to the following provisions:

(a) Personal fall restraint systems must be rigged to allow the movement of employees only as far as the unprotected sides and edges of the walking/working surface, and must consist of:

(i) A full body harness must be used.

(ii) The full body harness must be attached to securely rigged restraint lines.

(iii) All hardware assemblies for full body harness must be capable of withstanding a tension loading of four thousand pounds without cracking, breaking, or taking a permanent deformation.

(iv) The employer must ensure component compatibility.

(v) Anchorage points used for fall restraint must be capable of supporting four times the intended load.

(vi) Rope grab devices are prohibited for fall restraint applications unless they are part of a fall restraint system designed specifically for the purpose by the manufacturer, and used in strict accordance with the manufacturer's recommendations and instructions.

(b) Guardrail specifications.

(i) A standard guardrail system must consist of top rail, intermediate rail, and posts, and must have a vertical height of thirty-nine to forty-five inches from upper surface of top rail to floor, platform, runway, or ramp level. When conditions warrant, the height of the top edge may exceed the forty-five inch height, provided the guardrail system meets all other criteria of this subsection. The intermediate rail must be halfway between the top rail and the floor, platform, runway, or ramp. The ends of the rails must not overhang the terminal posts except where such overhang does not constitute a projection hazard.

(ii) Minimum requirements for standard guardrail systems under various types of construction are specified in the following items:

(A) For wood railings, the posts must be of at least two-inch by four-inch stock spaced not to exceed eight feet; the top rail must be of at least two-inch by four-inch stock and each length of lumber must be smooth surfaced throughout the length of the railing. The intermediate rail must be of at least one-inch by six-inch stock. Other configurations may be used for the top rail when the configuration meets the requirements of (b)(ii)(G) of this subsection.

(B) For pipe railings, posts and top and intermediate railings must be at least one and one-half inches nominal OD diameter with posts spaced not more than eight feet on centers. Other configurations may be used for the top rail when the configuration meets the requirements of (b)(ii)(G) of this subsection.

(C) For structural steel railings, posts and top and intermediate rails must be of two-inch by two-inch by three-eighths inch angles or other metal shapes of equivalent bending strength, with posts spaced not more than eight feet on centers. Other configurations may be used for the top rail when the configuration meets the requirements of (b)(ii)(G) of this subsection.

(D) For wire rope railings, the top and intermediate railings must meet the strength factor and deflection of (b)(ii)(E) of this subsection. The top railing must be flagged at not more than six foot intervals with high-visibility material. Posts must be spaced not more than eight feet on centers. The rope must be stretched taut and must be between thirty-nine and forty-five inches in height at all points. Other configurations may be used for the top rail when the configuration meets the requirements of (b)(ii)(G) of this subsection.

(E) The anchoring of posts and framing of members for railings of all types must be of such construction that the completed structure must be capable of withstanding a load of at least two hundred pounds applied in any direction at any point on the top rail. The top rail must be between thirty-nine and forty-five inches in height at all points when this force is applied.

(F) Railings receiving heavy stresses from employees trucking or handling materials must be provided additional strength by the use of heavier stock, closer spacing of posts, bracing, or by other means.

(G) Other types, sizes, and arrangements of railing construction are acceptable, provided they meet the following conditions:

(I) A smooth surfaced top rail at a height above floor, platform, runway, or ramp level between thirty-nine and forty-five inches;

(II) When the two hundred pound (890 N) load specified in (b)(ii)(E) of this subsection is applied in a downward direction, the top edge of the guardrail must not deflect to a height less than thirty-nine inches (1.0 m) above the walking/working level. Guardrail system components selected and constructed in accordance with this part will be deemed to meet this requirement;

(III) Protection between top rail and floor, platform, runway, ramp, or stair treads, equivalent at least to that afforded by a standard intermediate rail;

(IV) Elimination of overhang of rail ends unless such overhang does not constitute a hazard.

(iii) Toe board specifications.

(A) A standard toe board must be a minimum of four inches nominal in vertical height from its top edge to the level of the floor, platform, runway, or ramp. It must be securely fastened in place with not more than one-quarter inch clearance above floor level. It may be made of any substantial material, either solid, or with openings not over one inch in greatest dimension.

(B) Where material is piled to such height that a standard toe board does not provide protection, paneling, or screening from floor to intermediate rail or to top rail must be provided.

(c) Cover specifications.

(i) Floor opening or floor hole covers must be of any material that meets the following strength requirements:

(A) Conduits, trenches, and manhole covers and their supports, when located in roadways, and vehicular aisles must be designed to carry a truck rear axle load of at least two times the maximum intended load;

(B) All floor opening and floor hole covers must be capable of supporting, without failure a minimum of eight hundred pounds or the maximum potential load, with a safety factor of four.

(I) All covers must be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees.

(II) All covers must be color coded or they must be marked with the word "hole" or "cover" to provide warning of the hazard.

(ii) Barriers and screens used to cover wall openings must meet the following requirements:

(A) Barriers must be of such construction and mounting that, when in place at the opening, the barrier is capable of withstanding a load of at least two hundred pounds applied in any direction (except upward), with a minimum of deflection at any point on the top rail or corresponding member.

(B) Screens must be of such construction and mounting that they are capable of withstanding a load of at least two hundred pounds applied horizontally at any point on the near side of the screen. They may be of solid construction of either grill work with openings not more than eight inches long, or of slat work with openings not more than four inches wide with length unrestricted.

(d) Warning line system specifications on pitches four in twelve or less for telecommunications work, and on low pitched open sided surfaces for work activities. The employer must ensure the following:

(i) Warning lines must be erected around all unprotected sides and edges of the work area during telecommunications work.

(A) When telecommunications work is taking place or when mechanical equipment is not being used, the warning line must be erected not less than six feet (1.8 m) from the edge of the roof.

(B) When mechanical equipment is being used, the warning line must be erected not less than six feet (1.8 m) from the roof edge which is parallel to the direction of mechanical equipment operation, and not less than ten feet (3.1 m) from the roof edge which is perpendicular to the direction of mechanical equipment operation.

(C) The employer must ensure that warning line systems are not used in adverse weather or in hours of darkness.

(ii) The warning line must consist of a rope, wire, or chain and supporting stanchions erected as follows:

(A) The rope, wire, or chain must be flagged at not more than six foot (1.8 m) intervals with high visibility material. Highly visible caution or danger tape as described in (d)(ii)(D) of this subsection, does not need to be flagged.

(B) The rope, wire, or chain must be rigged and supported in such a way that its lowest point (including sag) is no less than thirty-six inches from the surface and its highest point is no more than forty-five inches from the surface.

(C) After being erected, with the rope, wire or chain attached, stanchions must be capable of resisting, without tipping over, a force of at least sixteen pounds (71 N) applied horizontally against the stanchion, thirty inches (0.76 m) above the surface, perpendicular to the warning line, and in the direction of the unprotected sides or edges of the surface.

(D) The rope, wire, or chain must have a minimum tensile strength of five hundred pounds (2.22 kN), and after being attached to the stanchions, must be capable of supporting, without breaking, the loads applied to the stanchions.

(E) The line must be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

(iii) Access paths must be erected as follows:

(A) Points of access, materials handling areas, and storage areas must be connected to the work area by a clear access path formed by two warning lines.

(B) When the path to a point of access is not in use, a rope, wire, or chain, equal in strength and height to the warning line, must be placed across the path at the point where the path intersects the warning line erected around the work area.

(e) When work is being performed between the warning line and edge of the roof the employee must maintain 100 percent fall protection by fall restraint or fall arrest.

(10) Safety watch system specifications.

(a) When one employee is conducting any testing, servicing of equipment or repair work on a roof that has a pitch no greater than four in twelve, and not within six feet of the roof's edge, employers are allowed to use a safety watch system.

(b) Ensure the safety watch system meets the following requirements:

(i) There can only be two people on the roof while the safety watch system is being used: The one employee acting as the safety watch and the one employee engaged in the repair work or servicing equipment;

(ii) The employee performing the task must comply promptly with fall hazard warnings from the safety watch;

(iii) Mechanical equipment is not used; and

(iv) The safety watch system is not used when weather conditions create additional hazards or in the hours of darkness.

(c) Ensure the employee acting as the safety watch meets all of the following:

(i) Is a competent person as defined in WAC 296-32-210;

(ii) Has full control over the work as it relates to fall protection;

(iii) Has a clear, unobstructed view of the worker;

(iv) Is able to maintain normal voice communication; and

(v) Performs no other duties while acting as the safety watch.

(11) Other specifications.

(a) Ramps, runways and inclined walkways must:

(i) Be at least eighteen inches wide; and

(ii) Not be inclined more than twenty degrees from horizontal and when inclined, they must be cleated or otherwise treated to prevent a slipping hazard on the walking surface.

Note: See WAC 296-32-22555 (5)(c) for guarding ramps, runways, and inclined walkways that are four feet or more above the ground or lower level.

(b) Self-rescue devices. Self-rescue devices are not a fall protection system. Self-rescue devices used to self-rescue after a fall must meet the following requirements:

(i) Use self-rescue devices according to the manufacturer's instructions; and

(ii) Self-rescue devices must be addressed by the fall protection work plan.

(c) Canopy. Canopies, when used as falling object protection, must be strong enough to prevent collapse and to prevent penetration by any objects which may fall onto the canopy.

(d) Roofing bracket specifications. Roofing brackets are not a fall protection system.

(i) Roofing brackets must be constructed to fit the pitch of the roof.

(ii) In addition to securing brackets using the pointed metal projections, brackets must also be secured in place by nailing. When it is impractical to nail brackets, rope supports must be used. When rope supports are used, they must consist of first grade manila of at least three-quarters inch diameter, or equivalent.

(e) Roof edge materials handling areas and materials storage specifications.

(i) When guardrails are used at hoisting areas, a minimum of four feet of guardrail must be erected along each side of the access point through which materials are hoisted.

(ii) A chain or gate must be placed across the opening between the guardrail sections when hoisting operations are not taking place.

(iii) When guardrails are used at bitumen pipe outlet, a minimum of four feet of guardrail must be erected along each side of the pipe.

(iv) Mechanical equipment must be used or stored only in areas where employees are protected using a fall arrest system as described in WAC 296-32-22555(8), or a fall restraint system as described in WAC 296-32-22555 (9)(b) or (d). Mechanical equipment may not be used or stored where the only protection is provided by the use of a safety monitor.

(v) The hoist must not be used as an attachment/anchorage point for fall arrest or fall restraint systems.

(vi) Materials must not be stored within six feet of the roof edge unless guardrails are erected at the roof edge. Guardrails must include a toe board if employees could be working or passing below.

WAC 296-32-22560 Ladders.

(1) The employer must ensure that no employee nor any material or equipment must be supported or permitted to be supported on any portion of a ladder unless it is first determined, by inspections and checks conducted by a competent person that such ladder is free of defects, in good condition and secured in place.

(2) The spacing between steps or rungs permanently installed on poles and towers must be no more than eighteen inches (thirty-six inches on any one side). This requirement also applies to fixed ladders on towers, when towers are so equipped. Spacing between steps must be uniform above the initial unstepped section, except where working, standing, or access steps are required. Fixed ladder rungs and step rungs for poles and towers must have a minimum diameter of 5/8 inch. Fixed ladder rungs must have a minimum clear width of twelve inches. Steps for poles and towers must have a minimum clear width of 4 1/2 inches. The spacing between detachable steps may not exceed thirty inches on any one side, and these steps must be secured when in use.

(3) Portable wood ladders intended for general use must not be painted, but may be coated with a translucent nonconductive coating. Portable wood ladders must not be longitudinally reinforced with metal.

(4) Portable wood and fiberglass ladders that are not being carried on vehicles and are not in active use must be stored where they will not be exposed to the elements and where there is good ventilation.

(5) Aluminum or conductive ladders may not be used on a work site that contains potential electrical hazards.

(6) Rolling ladders.

(a) Rolling ladders used in telecommunication facilities must have a width between the side rails, inside to inside, of at least twelve inches.

(b) Except in working spaces that are not a means of egress, the ladders must have a minimum inside width, between the side rails, of at least eight inches.

(7) Climbing ladders or stairways on scaffolds used for access and egress must be affixed or built into the scaffold by proper design and engineering, and must be so located that their use will not disturb the stability of the scaffold. The rungs of the climbing device must be equally spaced, but may not be less than twelve inches nominal nor more than sixteen inches nominal apart. Horizontal end rungs used for platform support may also be utilized as a climbing device if such rungs meet the spacing requirement of this subsection, and if clearance between the rung and the edge of the platform is sufficient to afford a secure handhold. If a portable ladder is affixed to the scaffold, it must be securely attached and must have rungs meeting the spacing requirements of this subsection. Clearance must be provided in the back of the ladder of not less than six inches from center of rung to the nearest scaffold structural member.

(8) When using ladder hooks: Employees must secure themselves to the ladder and aerial strand by:

(a) A lineman's belt and strap; or

(b) Ladder safety equipment if provided.

(9) Portable ladders, when in use, must be:

(a) Equipped with safety shoes; and

(b) Equipped with properly adjusted locking levelers when working on uneven ground.

(10) Ladders must be inspected by a competent person prior to each use. Ladders which have developed defects must be withdrawn from service for repair or destruction and tagged or marked as "dangerous do not use."

(11) Persons on ladders. Ladders must not be moved, shifted or adjusted while anyone is on the ladder. Secure the ladder at the top and bottom when working from it.

> **Note**: See chapter 296-876 WAC for additional safety requirements on ladders.

WAC 296-32-22565 Vehicle-mounted material handling devices and other mechanical equipment.

(1) General. The applicable operator/owner safety manual for vehicle-mounted material handling devices and other mechanical equipment must be followed. The manufacturer's operator's instructional manual must be kept on the vehicle.

(a) The operation of all motor vehicles and trailers must be in conformance with the motor vehicle laws, the general safety and health standards of the state of Washington and all local traffic ordinances.

(b) The employer must ensure that prior to use, visual inspections are made of the equipment by a competent person/operator each day the equipment is to be used to ascertain that it is in good condition.

(c) The employer must ensure that tests will be made at the beginning of each shift by a competent person to ensure the vehicle brakes and all operating systems are in proper working condition.

(2) Scrapers, loaders, dozers, graders and tractors. All mobile, self-propelled scrapers, mobile front end loaders, mobile dozers, agricultural and industrial tractors, crawler tractors, crawler-type loaders, and motor graders used in telecommunications work must have rollover protective structures that meet the requirements of WAC 296-155-950 through 296-155-965, and the requirements of WAC 296-155-615 (1) through (2)(c).

WAC 296-32-22570 Communication, roof tops, water towers and other elevated locations.

For fall protection, guardrails and warning lines follow the requirements in WAC 296-32-22555 of this chapter.

WAC 296-32-22572 Microwave transmission/radio frequency radiation (RFR) and laser communication—General requirements.

(1) General. Employers must ensure that employees performing work on communication sites/facilities are not exposed to radio frequency (RFR) electromagnetic fields in excess of the Federal Communications Commission (FCC) maximum permissible exposure (MPE) limits for exposure as prescribed in 47 C.F.R. 1.1310.

> **Note**: See chart in WAC 296-32-210 under the definition of "nonionizing radiation (RFR)."

(2) RF safety program. The employer must establish and maintain a program for the control and monitoring of nonionizing radiation hazards. This program must provide employees adequate supervision, training, facilities, equipment, and supplies, for the control and assessment of nonionizing hazards.

(3) Prior to commencing work where there are potential RFR hazards, a competent person must assess potential RFR hazards of areas which may be accessed by employees in the course of their work, and post temporary signage to indicate areas where the RFR hazard exceeds the general population/uncontrolled MPE limits for exposure set forth in 47 C.F.R. 1.1310. Temporary signage must remain in place while work is performed and the hazard exists.

> **Note**: Temporary signage posting areas may include doorways, gates, or hatches.

WAC 296-32-22574 Hazardous areas.

Protection from radiation exposure.

(1) Employees must not enter areas where radio frequency radiation (RFR) exposure levels are above the general population/uncontrolled MPEs described in 47 C.F.R. 1.1310 unless they understand the potential for exposure and can exercise control over the exposure.

(2) Hazardous area. Accessible areas associated with communication systems where the electromagnetic radiation level exceeds the maximum permissible exposure limits (PELs) given in WAC 296-62-09005 must be posted as described in that section.

Note: ANSI 535.1, 2006, Safety Colors, ANSI C95.2, 1999, IEEE Standard for Radio Frequency Energy and Current Flow Symbols, ANSI Z535.2, 2011, Environmental and Safety Signs contains additional information relating to signage.

(3) Protective measures. When an employee works in an area where the electromagnetic radiation exceeds the radiation protection guide, the employer must institute measures that ensure that the employee's exposure is not greater than that permitted by the radiation guide. Such measures must include, but not be limited to, those of an administrative or engineering nature or those involving personal protective equipment. Employers must have monitoring devices on each site while work is being performed.

(4) Radiofrequency radiation exposure limits. The criteria listed in Table 4 must be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in 47 C.F.R. Sec. 1.1307(b), except in the case of portable devices which must be evaluated according to the provisions of 47 C.F.R. Sec. 2.1093. Further information on evaluating compliance with these limits can be found in the FCC's OST/OET Bulletin Number 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation."

Note to Introductory Paragraph: These limits are generally based on recommended exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," NCRP Report No. 86, sections 17.4.1, 17.4.1.1, 17.4.2 and 17.4.3. Copyright NCRP, 1986, Bethesda, Maryland 20814. In the frequency range from 100 MHz to 1500 MHz, exposure limits for field strength and power density are also generally based on guidelines recommended by the American National Standards Institute (ANSI) in section 4.1 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1-1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017.

Table 4 Limits for Maximum Permissible Exposure (MPE)

Frequency range(MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

Note 1 to Table 4: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2 to Table 4: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

WAC 296-32-22576 Optical communications systems (laser).

(1) Laser radiation permissible exposure limits.

(2) All lasers and laser systems must be classified in accordance with the Federal Laser Product Performance Standards (21 C.F.R. 1040.10) or, in accordance with ANSI Z136.2-2012 and ANSI Z136.1-2014.

(a) Class I laser systems that are considered to be incapable of producing damaging radiation levels during operation and are thereby exempt from control measures or other forms of surveillance.

(b) Class 1M laser systems that are considered to be incapable of producing hazardous exposure conditions during normal operations unless the beam is viewed with an optical instrument such as eye-loupe (diverging beam) or telescope (collimated beam) and are, thereby exempt from other forms of surveillance.

(c) Class II laser systems emit in the visible portion of the spectrum (0.4 µm to 0.7 µm) and eye protection is normally afforded by aversion responses, including the blink reflex. There is some possibility of injury if stared at.

(d) Class IIM laser systems emit in the visible portion of the spectrum (0.4 µm to 0.7 µm) and eye protection is normally afforded by aversion responses (blink reflex) for unaided viewing, but are potentially hazardous if viewed with certain optical aids.

(e) Class IIIR laser systems have reduced product safety requirements and represent a transitional zone between safe and hazardous laser products.

(f) Class IIIB laser systems may be hazardous under direct and specular reflection viewing conditions, but the diffuse reflection is usually not a hazard. Class IIIB laser systems are normally not a fire hazard.

(g) Class IV (high power) laser systems are hazardous to the eye and skin from the direct beam, and sometimes from a diffuse reflection, and can also be a fire hazard. Class IV systems require the use of controls that prevent exposure of the eye and skin to specular or diffuse reflections of the beam.

(3) You must have a laser safety officer for installation and maintenance of all Class IIIB or Class IV laser systems.

(4) Warning signs and classification labels must be prepared in accordance with 21 C.F.R. 1040.10 when classifying lasers and laser systems, and ANSI Z136.1-2014 when using classified lasers and laser systems. All signs and labels must be conspicuously displayed.

(a) The signal word "CAUTION" must be used with all signs and labels associated with Class II and Class IIIR lasers and laser systems.

(b) The signal word "DANGER" must be used with all signs and labels associated with Class IIIB and Class IV lasers and laser systems.

(5) Personal protective equipment must be provided at no cost to the employee and must be worn whenever operational conditions or maintenance of lasers may result in a potentially hazardous exposure.

(a) Protective eyewear must be specifically designed for protection against radiation of the wavelength and radiant energy of the laser or laser system. Ocular exposure must not exceed the limits in ANSI Z136.1-2014 and ANSI Z136.2-2012.

(b) For Class IV lasers and laser systems protective eyewear must be worn for all operational conditions or maintenance which may result in exposures to laser radiation.

(6) You must establish control of hazardous laser radiation energy prior to work on Class IIIB or Class IV laser equipment. Controls may include, but are not limited to: Protective housings, interlocks, optical system attenuators, enclosed beam paths, beam stops, and emission delays with audible warnings.

> **Note**: See WAC 296-32-22578 Control of hazardous energy for additional requirements.

(7) All employees who may be exposed to laser radiation must receive laser safety training. The training must ensure that the employees are knowledgeable of the potential hazards and control measures for the laser equipment in use.

(8) Fiber splicing.

(a) Employees must wear safety glasses with side shields or goggles while splicing fiber.

(b) Food and beverages are prohibited in the work area of fiber splicing operations.

(c) Employees must place all cut fiber pieces in a safe place.

(d) Smoking and open flames are prohibited in the work area of fiber splicing operations when using flammable chemicals.

(e) The work area must be well ventilated when using cleaning chemicals and adhesives during fiber splicing/repair operations or where the potential of other hazardous atmospheres exists. Use air monitoring equipment to ensure the work area is adequately ventilated.

(f) Looking directly into the end of fiber cables is prohibited (especially with a microscope) until you are positive that there is no light source at the other end.

(g) You must have safety data sheets (SDSs) readily available during all fiber splicing operations (see chapter 296-901 WAC).

WAC 296-32-22578 Control of hazardous energy.

This section establishes protection for employees who work directly in the hazardous vicinity of telecommunication facilities, sites, or towers having the following energy:

(a) Radio frequency radiation (RFR);

(b) Laser, see WAC 296-62-09005(4);

(c) Microwave;

(d) AM or FM;

(e) High intensity electromagnetic fields.

> **Note**: Employees exposed to all other types of hazardous energy are required to follow chapter 296-803 WAC.

(1) Employees working in the telecommunication industry that may be exposed to RFR as well as other hazardous energy, the employer must ensure their safety by following this chapter for RFR as well as chapter 296-803 WAC for other hazardous energy.

(2) The employer must effectively control all forms of hazardous energy under this section by:

(a) Elimination;

(b) Isolation;

(c) Reduction to permissible exposure limits, otherwise known as alternative effective means (see WAC 296-32-22574 for maximum permissible exposure limits (MPE limits)).

(d) If a source of energy is controlled by alternative effective means, it must be tagged out.

(e) If a source of energy is eliminated or isolated but cannot be locked out, it must be tagged out.

(3) The host employer or the FCC license holder in control of the energy source must establish a control of hazardous energy program that is effective for 30-300 mhz and UHF broadcast bands; see WAC 296-32-22511 for additional requirements relating to host/contractor responsibilities.

(4) The employer must ensure that site specific energy source data and contact information is available and current at each telecommunication site/facility.

(5) The employer must establish and implement a hazardous energy control program to prevent the accidental or purposeful increase or release of energy if employees are to work in the hazardous vicinity of any telecommunication sites/facilities where employees could be exposed to any of the following energies:

(a) RFR (30-300 mhz) and UHF broadcast bands;

(b) Laser;

(c) Microwave;

(d) AM or FM;

(e) High intensity electromagnetic fields.

Note: Additional information is located in WAC 296-62-09005.

(6) The employer must ensure that undetermined or unknown levels of energy must be considered hazardous until they are clearly verified.

(7) The employer must ensure the hazardous energy control program consists of all the following elements:

(a) Host/contractor employer responsibilities as described in WAC 296-32-22511 of this chapter;

(b) Energy control procedures as described in subsections (11) through (13) of this section;

(c) Approved test procedures determined by the Federal Communications Commission (FCC) OET65 used to ensure that the area is safe for human presence;

(d) Training as described in subsections (14) through (17) of this section;

(e) Annual reviews as described in subsection (19) of this section;

(f) Tower and worksite evaluations as described in subsection (20) of this section;

(g) Procedures for removing an authorized person(s) lockout or tagout device;

(h) Procedures for alternative effective means and application/removal of tagout devices.

(8) The employer must make sure energy control procedures clearly and specifically outline:

(a) The scope, purpose, authorization, rules, and techniques to shut down or reduce hazardous energy to within the MPE limits before working within a hazardous vicinity; and

(b) How you will ensure employees follow the procedures.

(9) The employer must keep written energy control procedures and records of energy levels, for the elimination, isolation or effectively reducing hazardous energy to within MPE limits for the duration of each job being performed for twelve months.

(10) Employers able to increase amplification of energy must make themselves familiar of this chapter and comply with protections afforded to personnel while work is being completed under the scope of this chapter. Employers able to and responsible for increasing amplification must follow the requirements located in WAC 296-32-22511, and those employers with employees being exposed to hazardous energy.

(11) The employer of the affected and authorized employees must notify the employer of the controlling energy source and employers able to and responsible for increasing amplification when they will be on-site and the need for the controlling energy source to be reduced to a safe level or turned off.

(12) The employer of the controlling energy source must notify the employer of the affected and authorized employees that the controlling energy source has been reduced to within the MPE limits or turned off completely before work begins.

(13) The employer must ensure affected and authorized employees must test to ensure the energy source has been reduced to within the MPE limits or isolated or eliminated by testing and verification through approved methods and equipment.

(14) The employer must ensure that written energy control procedures are in a language comprehensible by each employee working on or around the hazardous vicinity of a telecommunication site/facility.

(15) The employer must make sure energy control procedures specifically identify at least the following: (This includes remote control sites/facilities and remote worksites.)

(a) What personnel are considered affected or authorized, and how to contact;

(b) What location and equipment the procedure is verified for;

(c) When the procedure must be used;

(d) How the procedure is verified to be up-to-date and accurate;

(e) What the specific procedural steps are for:

(i) Notifying employers able to increase amplification;

(ii) Notifying all affected personnel;

(iii) Shutting down or reduction to within the MPE limits;

(iv) Eliminating or isolating the energy source;

(v) Securing the energy source;

(vi) Placing, removing, and transferring lockout/tagout devices and who is responsible for them;

(vii) How to test the machine or equipment to verify the effectiveness of lockout devices, reduction to MPE limits, and other energy control measures.

(16) The employer must ensure that when reducing hazardous energy to within the MPE limits (alternative effective means) the employees in hazardous areas must be trained to all requirements in this section.

(17) Training.

(a) You must effectively train employees and establish proficiency on this chapter and your site specific hazards to ensure they:

(i) Understand the purpose and function of the energy control program; and

(ii) Have the knowledge and skills necessary to carry out their responsibilities safely.

Note: Additional and supplemental training for other forms of hazardous energy are covered under chapter 296-803 WAC.

(b) You must establish proficiency for each employee in a language comprehensible in all of the following:

(i) Identification of the type(s) and magnitude of energy available on a telecommunication site/facility.

(ii) Recognizing hazardous energy sources that are potential and present.

(iii) Methods to eliminate, isolate or reduce to within the MPE limits:

(A) Which type of control (elimination, isolation or reducing to within the MPE limits) affords the best protection to the employee; and

(B) What steps must be supplemented with additional safeguards when using alternative effective means under (c) of this subsection.

(iv) The purpose and use of the energy control procedures listed in this chapter;

(v) Lockout, tagout and alternate effective means systems, devices, procedures and processes to be used;

(vi) Control of hazardous energy procedures to be used;

(vii) Prohibition against attempting to restart, reenergize, amplify or touch a machine or equipment that has been locked out or controlled through alternate effective means;

(viii) That lockout is the primary method of energy control, and that other means do not provide equal protection.

(ix) Means and methods of communication with the employers responsible for and able to increase amplification.

(c) Required supplementary training for alternative effective means. You must establish additional proficiency if you use alternate effective means as energy control. This additional preparation must include the following:

(i) When the employer is permitted to reduce the energy to within the MPE limits only if it is feasible to lockout the energy source;

(ii) The process for contacting all employers who have a potential to increase amplification on any equipment, component, transmitter or receiver on the telecommunication site/facility which creates a hazardous vicinity;

(iii) The process for documentation of the methods required for reducing to within the MPE limits;

(iv) That alternate effective means are not as effective as lockout;

(v) That alternate effective means rely upon someone else for your protection;

(vi) That alternate effective means give a false sense of security;

(vii) Authorization for use of alternate effective means must:

(A) Be in a language comprehensible by all affected and authorized employees;

(B) Be documented by authorized employees;

(C) Be documented by employers responsible for and able to increase amplification.

(viii) Selection and use of personnel RFR metering/monitoring devices;

(ix) Emergency procedures and contact requirements in the event of energy control failure;

(x) Personal protective equipment and RFR suits/etc. used for protection:

(A) Donning and doffing procedures;

(B) Specifications/inspection/life expectancy;

(C) Cleaning;

(D) Wear and tear.

(d) You must document that employee training has been completed and kept up to date according to WAC 296-32-22525. It must be supplemented with the additional requirements, including all documents/videos/supporting information used in the training.

Note: Training records may be electronic.

(18) Retraining.

(a) Retraining must be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment, or processes that present a new hazard or whenever there is a change in the energy control procedures.

(b) Retraining must also be conducted whenever a periodic inspection reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in an employee's knowledge or use of the energy control procedures.

(c) The retraining must reestablish employee proficiency and must introduce new or revised control methods and procedures, as necessary.

(d) The employer must certify that employee training has been accomplished and is being kept up to date. The certification must contain each employee's name and dates of training.

(19) Annual inspection/review.

(a) The controlling employer of the energy source must conduct an inspection/review of the equipment shut-down or alternative effective means procedures at least annually to:

(i) Make sure employees know and have been applying the energy control procedures appropriate for the work and hazards;

(ii) Correct any deviations or inadequacies identified as well as identify unique hazards;

(iii) Inform all contractors, leasees, subcontractors of retraining that need to occur to changes, modifications or additions.

(b) The controlling employer of the energy source must perform an annual inspection/review:

(i) The annual inspection/review must be performed by an authorized employee who is not using the energy control procedures being inspected;

(ii) The employer of the exposed and affected employees conducting work on the communication site/facility must ensure that the annual inspection/review has been performed by the controlling employer of the energy source.

(c) The employer must ensure that the annual inspection/review is documented and that the documentation includes all of the following:

(i) Equipment energy control procedures for the devices and components which possess hazardous energy potential that are to be eliminated, isolated, or reduced to within MPE limits;

(ii) Date of the inspection/review;

(iii) Employees included that have performed the procedures for the previous year;

(iv) Person doing the inspection/review.

(d) The annual inspection/review and any deviations must be kept on-site for one year. All forms of documentation must be kept for life of the equipment or twenty years, whichever comes first.

(20) Site/facility evaluations.

(a) The employer of the controlling energy source must conduct, document and retain telecommunication site/facility location evaluations.

(b) The employer of the controlling energy source must ensure that telecommunication sites/facilities location evaluations required under WAC 296-32-24005 (5), (6), (7) are supplemented with:

(i) A topographic map of the exact field location and any site/facility within a predicted worst-case power density distance as outlined in the FCC Office of Engineering of Technology, Bulletin 65, Edition 97-01;

(ii) A comprehensive cross sectional diagram of the structure, and where antennas transmitting devices and other apparatuses are located;

(iii) A comprehensive cross sectional diagram of the structure's hazardous energy and hazardous vicinity associated with each of the sources;

(iv) The host employer/contractor responsible (carrier, leasee or renter) party's contact information for each of the antennas, transmitters. and/or apparatus;

(v) Contact information for any employer who is able to increase amplification on the telecommunication site/facility being worked on, or any site/facility within the hazardous vicinity or able to transmit hazardous energy to employees at the job site's location;

(vi) Contact information of the site/facility owner;

(vii) A listing of work completed on the site/facility in the last twelve months.

(c) Information in the telecommunication site/facility location evaluations must be easily comprehensible by any employee conducting work on, or within the hazardous vicinity of the site.

(21) Energy control and devices.

(a) The employer must provide appropriate means to control energy through elimination, isolation, or alternative effective means from energy sources.

(b) The employer must make sure lockout and tagout devices meet all of the following:

(i) Create no additional hazards;

(ii) Have a distinctive design or appearance;

(iii) Are the only devices used for controlling energy;

(iv) Are not used for any other purpose;

(v) Are durable enough to withstand the environment they are used in for the maximum time they are expected to be used;

(vi) Are standardized within the site by color, shape or size;

(vii) Identify the specific person who is protected by the lockout or tagout device.

(c) The employer must make sure lockout devices are strong enough so that removing them by other than the normal unlocking method requires:

(i) Excessive force; or

(ii) Unusual techniques such as the use of bolt cutters or other metal cutting tools.

(d) The employer must make sure tagout devices meet these additional requirements:

(i) Make sure all tags:

(A) Meet the format and design criteria of danger/warning tags located in ANSI Z535.5, 2011;

(B) Use the same print and format within a site/facility;

(C) Are constructed and printed so they will not deteriorate and the message on the tag remains legible when:

(I) Exposed to weather;

(II) Used in wet or damp locations;

(III) Used in a corrosive environment such as areas where acid or alkali chemicals are handled or stored.

(D) Have a warning about not energizing or increasing the power to the machine, equipment or component.

(ii) Make sure tagout devices are strong enough to prevent unintentional or accidental removal.

(iii) Make sure the means used to attach the tag to the energy isolating device meets all of the following:

(A) Is not reusable;

(B) Is self-locking;

(C) Can be attached by hand;

(D) Cannot be released with a force of less than fifty pounds;

(E) Is similar in design and basic characteristics to a one-piece, all-environment-tolerant nylon cable tie.

(e) The employer must provide appropriate testing/monitoring equipment to assess the potential types and magnitude of energy available at the telecommunication site/facility.

(22) Use of energy control.

(a) The employer must use energy control procedures in this section to protect employees from potentially hazardous energy.

(b) The employer must use a lockout system if it is feasible and the energy source can be locked out.

(i) If a lockout system is used, it must be applied at each source of energy and only by the authorized employee who may be exposed to the hazardous energy;

(ii) If multiple employers/authorized personnel are to work on a telecommunication site/facility, group energy must afford the same protection as individual lockout.

(c) The employer must use a tagout system only if an energy source cannot be locked out. If it is infeasible to lock out an energy source, you may be permitted to reduce the energy source exposure to within the MPE limits. If it is feasible to lock out a source of energy, you must do so. If the source cannot be locked, you must use tagout.

(d) You must make sure lockout devices hold the energy-isolating device in a "safe" or "off" position.

(e) You must meet these additional requirements when applying a tagout device:

(i) Make sure a tagout device is put on an energy-isolating device so it clearly shows that moving the energy-isolating device from the "safe" or "off" position is prohibited;

(ii) Make sure a tagout device, when used with an energy-isolating device that can be locked out, is fastened to the device at the same point a lock would have been attached;

(iii) Make sure a tagout device that cannot be attached directly to an energy-isolating device is located:

(A) As close as safely possible to the energy-isolating device; and

(B) In a position that is immediately obvious to anyone attempting to operate the energy-isolating device.

(23) Reducing to within the maximum permissible exposure limits (MPE limits) – Authorization steps.

(a) The employer must meet these additional requirements when applying a tagout device for alternative effective means protection to receive authorization to work:

(i) The authorized employee must coordinate with a qualified transmitter engineer/operator to ensure energy control procedures are being followed;

(ii) The authorized employee must have on-their-person testing devices capable of monitoring all potential energy output and alarming if an increase occurs in any component, device or equipment;

(iii) The qualified transmitter engineer/operator must contact all employers responsible for amplifying power within the hazardous vicinity of the affected and authorized employees on the site and ensure the following:

(A) The individual applying the tag gives their name, title and manager's number to the qualified transmitter engineer/operator;

(B) The individual applying the tag notifies the qualified transmitter engineer/operator that they know and understand their responsibilities and requirements of this section;

(C) The individual applying the tag reduces the energy to the specified amount, as determined by the qualified transmitter engineer/operator, and allowed by the PEL;

(D) This energy reduction is verified by the qualified transmitter engineer/operator on-site;

(E) A tagout device is secured on the dial, knob, terminal, switch or device used to increase or decrease power for each transmitter, component and equipment capable of introducing hazardous energy;

(F) The qualified transmitter engineer/operator documents the name, date, and time of contact as well as what energy was controlled at the time;

(G) The qualified transmitter engineer/operator contacts the authorized persons on-site, and ensures that they verify the power is reduced to acceptable levels according to the MPE limits.

(iv) When the authorized employee has completed their job, and outside of the hazardous vicinity, they will inform the qualified transmitter engineer/operator on-site;

(v) The qualified transmitter engineer/operator on-site will verify no employees are within the hazardous vicinity;

(vi) The qualified transmitter engineer/operator will contact all employers capable of amplifying power and have the tagout devices removed. The qualified transmitter engineer/operator will document the person they spoke to, the time, and the date the tagout was "closed";

(vii) The qualified transmitter engineer/operator will return the equipment back to normal power.

(b) The employer must protect employees from the hazards of potential, stored, residual or active hazardous energy by:

(i) Making sure all potentially hazardous stored and residual energy is relieved, discharged, disconnected, restrained, or otherwise rendered safe after the lockout or tagout devices have been put on the energy-isolating devices;

(ii) Continuous verification of the control of machines, equipment, transmitters, receivers, or that could reaccumulate stored energy to a hazardous level until:

(A) Service or maintenance is completed; or

(B) The possibility of accumulating hazardous energy does not exist.

(c) The employer must make sure each authorized employee verifies that the machine, equipment, transmitter, receiver or antenna that has been locked, tagged or reduced to within the MPE limits is safe to work around before starting work.

(d) The employer must ensure that before lockout/tagout devices are removed and the energy is restored to machine or equipment, procedures must be followed and actions taken by the authorized employees to ensure the following:

(i) The work area must be inspected to ensure that nonessential items have been removed and that machine or equipment components are operationally intact;

(ii) The work area must be checked and verified to ensure that all employees have been notified, safely positioned or removed;

(iii) The employer of the affected employees must notify the employer of the controlling energy source that it is safe to restore the energy source;

(iv) After (a) through (c) of this subsection have been completed, locks and or tags can be removed and energy restored to regular power:

(A) If the type of control was elimination or isolation and was locked or tagged out, the lock or tag must be removed by the authorized person who applied it.

(B) If the type of control was reduction to MPE limits or alternative effective means, the tag can be removed by the individual who applied it.

(v) In the case of elimination or isolation the employer may have the lockout or tagout device removed by someone other than the authorized employee who applied it if all of the following conditions are met:

(A) The energy control program has a documented, specific procedure and training for this situation.

(B) You can show that the specific procedures used are as safe as having the device removed by the authorized employee who applied it.

(C) The specific procedures include at least the following:

(I) Verifying the authorized employee who applied the device is not at the site/facility;

(II) Making all reasonable efforts to contact and inform the authorized employee that the lockout or tagout device is being removed;

(III) Making sure the authorized employee is informed, before resuming work at the site/facility, that the lockout or tagout device has been removed.

(e) The employer must meet these requirements if it is necessary to temporarily energize a machine, equipment or component for testing or positioning:

(i) Ensure all authorized or affected personnel are notified and out of hazardous vicinities where exposure to hazardous energy could injure them’

(ii) Follow the energy control program procedures to:

(A) Have all affected and authorized personnel and employees move outside the hazardous vicinity;

(B) Have the authorized individual remove the lockout or tagout device or alternative effective means device;

(C) Contact the employer able to increase or amplify power and have them remove the lockout or tagout device;

(D) Energize or increase power to the machine, equipment or component;

(E) Conduct testing or positioning;

(F) Isolate, eliminate or reduce the power to within the MPE limits;

(G) Reapply the lockout or tagout device when testing or positioning is completed;

(H) Ensure proper protection is afforded through alternative effective means;

(I) Use metering, monitoring or testing devices to determine levels of energy are safe to reenter the area.

(f) The employer must make sure each authorized employee:

(i) Puts a personal lockout or tagout device on the isolation device, group lockout device, lockbox, or comparable mechanism before beginning work;

(ii) Does not remove it until they have finished work on the machine or equipment; and

(iii) Using an energy control alternative effective means, must have a means to contact the employer who has the ability to increase amplification, and how a tagout device will be applied and removed.

(24) Group lockout/tagout and shift changes.

(a) (i) The employer must protect employees during shift or personnel changes by doing the following:

(ii) Use specific procedures for shift or personnel changes to:

(A) Make sure there is continuous lockout or tagout protection during the change; and

(B) Provide for the orderly transfer of lockout or tagout device protection between employees.

(b) The employer must make sure your group energy control procedures provide each member of a crew, craft, department, or other group with the same level of protection as that provided by an individual lockout or tagout device.

(c) The employer must assign a primary authorized employee during group energy control who:

(i) Has overall responsibility for the service or maintenance;

(ii) Attaches their lockout or tagout device to the energy-isolating device when the equipment is deenergized and before any work begins;

(iii) Ensures all employees have been notified and removed from the hazardous vicinity; and

(iv) Is the last person to remove their lockout or tagout device when the job is completed.

(d) The employer must do all of the following if more than one group works on a machine, equipment, transmitter or receiver that has to be locked, tagged or reduced to within the MPE limits:

(i) Assign an authorized person as the group coordinator with overall responsibility to:

(A) Coordinate the different work groups; and

(B) Maintain continuous lockout, tagout or reduction to within the MPE limits protection.

(ii) Assign a primary authorized employee in each group who has:

(A) Responsibility for the group of employees who are protected by a group lockout or tagout device; and

(B) A way to determine which employees of the group are exposed to the machine or equipment that is locked or tagged out.

PART B—REQUIREMENTS THAT APPLY TO WIRELINE

Note: Wireline – This part is intended to convey to the employer the responsibilities for the training and protection of their employees working with or in telecommunications wireline facilities and field installations.

WAC 296-32-23505 Pole climbing equipment.

(1) Approved lineman's belts and straps must be provided. The employer must ensure their use when work is performed at positions more than four feet above ground, on poles. The belt and strap (work-positioning systems) must be rigged so that an employee can free fall no more than two feet (0.6 meters).

(2) The employer must ensure that all safety belts and straps are inspected by a competent person prior to each day's use to determine that they are in safe working condition.

(3) Telecommunication lineman's body belts, safety straps and lanyards have to meet the following general requirements:

(a) Must be drop forged or pressed steel.

(b) Must have a corrosion resistant finish tested to meet the requirements of the American Society for Testing and Materials B117-64 (50-hour test).

(c) Hardware surfaces must be smooth and free of sharp edges.

(d) Lineman's body belts must be at least four inches in width.

(e) Buckles must be capable of withstanding an 8.9-kN (2,000-pound force) tension test with a maximum permanent deformation no greater than 0.4 millimeters (0.0156 inches).

(f) "D" rings must be capable of withstanding a 22-kN (5,000-pound force) tensile test without cracking or breaking.

(g) Snaphooks must be capable of withstanding a 22-kilonewton (5,000-pound force) tension test without failure. The keeper of the locking snaphooks must have a spring tension that will not allow the keeper to begin to open with a weight of two and one-half pounds or less, but the keeper of snaphooks must begin to open with a weight of four pounds, when the weight is supported on the keeper against the end of the nose. The snaphook must be a locking snaphook.

Note: Distortion of the snaphook sufficient to release the keeper is considered to be tensile failure of a snaphook.

(h) Top grain leather or leather substitute may be used in the manufacture of body belts and positioning straps; however, leather and leather substitutes may not be used alone as a load-bearing component of assembly.

(i) Plied fabric used in positioning straps and in load-bearing parts of the body belts must be constructed in such a way that no raw edges are exposed and the plies do not separate.

(j) Positioning straps must be capable of withstanding the following tests:

(i) A dielectric test of 819.7 volts, AC, per centimeter (25,000 volts per foot) for three minutes without visible deterioration;

(ii) A leakage test of 98.4 volts, AC, per centimeter (3,000 volts per foot) with a leakage current of no more than 1 mA;

Note: Positioning straps that pass direct-current tests at equivalent voltages are considered as meeting this requirement.

(iii) Tension tests of 20 kN (4,500 pounds-force) for sections free of buckle holes and of 15 kN (3,500 pounds-force) for sections with buckle holes.

(iv) A buckle tear-test with a load of 4.4 kN (1,000 pounds-force); and

(v) A flammability test in accordance with Table 5.

Table 5

Flammability Test Method	Criteria for Passing the Test
Vertically suspend a 500 mm (19.7 inch) length of strapping supporting a 100 kg (220.5 lb.) weight. Use a butane or propane burner with a 76 mm (3 inch) frame. Direct the flame to an edge of the strapping at a distance of 25 mm (1 inch). Remove the flame after five seconds. Wait for any flames on the positioning strap to stop burning.	Any flames on the positioning strap must self-extinguish. The positioning strap must continue to support the 100 kg (220.5 lb.) mass.

(4) Before an employee throws their weight on a belt, the employee must determine that the snap or fasteners are properly engaged.

(5) When working on single-use telecom poles, safety straps must not be placed above the cross-arm or top attachment except where it is not possible for the strap to slide or be slipped over the top of the pole.

(6) Neither end of the strap must be allowed to hang loose or dangle while the employee is ascending or descending poles or other structures.

(7) Lineman's belts and safety straps must not be stored with sharp-edged tools or near sharp objects. When a lineman's belt, safety strap and climbers are kept in the same container, they must be stored in such a manner as to avoid cutting or puncturing the material of the lineman's belt or safety strap with the gaffs or climbers.

(8) Unless the snap hook is designed for the following connections, snap hooks must not be engaged as follows:

(a) Connected to loops made in webbing-type lanyards.

(b) Connected to each other.

(c) Attached to a D-ring to which another snap hook or other connector is attached.

(9) Pole climbers.

(a) Climbing gaffs must be kept properly sharpened and must be at least one and one-quarter inches in length as measured on the underside of the gaff.

(b) The gaffs of pole climbers must be covered with safety caps when not being used for their intended use.

(c) The employer must ensure that pole climbers are inspected by a competent person/qualified climber for the following conditions: Fractured or cracked gaffs or leg irons, loose or dull gaffs, broken straps or buckles. If any of these conditions exist, the defect must be corrected or replaced before the climbers are used.

(d) Pole climbers must be inspected as required in this subsection before each day's use and a gaff cut-out test performed at least weekly when in use.

(e) Employees must not wear climbers while doing work where they are not required. Employees must not continue to wear their climbers while working on the ground, except for momentary periods of time on the ground.

(f) Pole climbers must not be worn when:

(i) Working in trees (specifically designed tree climbers must be used for tree climbing);

(ii) Working on ladders;

(iii) Working in an aerial lift;

(iv) Driving a vehicle;

(v) Walking on roadways, sidewalks, rocky, hard, frozen, bushy or hilly terrain.

(10) When a ladder is supported by an aerial strand, and ladder hooks or other supports are not being used, the ladder must be extended at least two feet above the strand and must be secured to it (e.g., lashed or held by a safety strap around the strand and ladder side rail). When a ladder is supported by a pole, it must be securely lashed to the pole unless the ladder is specifically designed to prevent movement when used in this application. Use a safety belt with a lanyard that is secured to the pole when doing any work.

(11) Aerial manlift equipment.

(a) These devices must not be operated with any conductive part of the equipment closer to exposed energized power lines than the clearances set forth in Table 6 of WAC 296-32-25518.

(b) Only qualified drivers must be permitted to operate aerial manlift equipment and must possess an appropriate and current motor vehicle operator's license, specific to the vehicle and load; such as a commercial driver's license (CDL) Class A, B, C, etc.

(c) When performing work from aerial manlift equipment, the employee must wear a full body harness and a lanyard attached to the manufacturer's approved attachment point.

(d) When it is necessary for the employee to remain in the bucket at an elevated position while traveling from pole to pole:

(i) There must be direct communication between the employee and the vehicle operator; and

(ii) The operator's manual must be followed for rate of speed.

(e) When any aerial manlift equipment is parked at the job site, the brakes must be set. Wheel chocks must be used to prevent uncontrolled movement. If equipped with outriggers, the outriggers must be implanted on firm footing.

(f) Manufacturer's recommended maximum load limit must be posted near each set of controls, kept in legible condition and the maximum load limit must not be exceeded.

(g) Flashing warning lights must be installed, maintained, and used on all aerial manlift equipment used on public thoroughfares.

(12) Inspection criteria. The employer must ensure that aerial lifts and associated equipment are inspected by a competent person at intervals set by the manufacturer but in no case less than once per year. Records must be maintained including the dates of inspections, and necessary repairs made. Additional requirements are located in chapter 296-869 WAC, Elevating work platforms.

(13) Digger derricks and similar equipment.

(a) This equipment must not be operated with any conductive part of the equipment closer to exposed energized power lines than the clearances set forth in Table 6 in WAC 296-32-23518.

(b) When digger derricks are used to handle poles near energized power conductors, these operations must comply with the requirements contained in WAC 296-32-23518(3) of this chapter.

(c) Moving parts of equipment and machinery carried on or mounted on telecommunications line trucks must be guarded. This may be done with barricades as specified in WAC 296-32-22530 of this chapter.

(d) Digger derricks and their operation must comply with the following requirements:

(i) Manufacturer's specifications, load ratings and instructions for digger derrick operation must be strictly observed.

(ii) Rated load capacities and instructions related to digger derrick operation must be conspicuously posted on a permanent weather-resistant plate or decal in a location on the digger derrick that is plainly visible to the operator.

(iii) Prior to operation the parking brake must be set and the stabilizers extended if the vehicle is so equipped. When the vehicle is situated on a grade, at least two wheels must be chocked on the downgrade side.

(iv) Only trained and qualified persons must be permitted to operate the digger derrick.

(v) Hand signals to operators must be those prescribed by ANSI A-10.31-2013, Safety Requirements, Definitions and Specifications for Digger Derricks.

(vi) The employer must ensure that the digger derrick and its associated equipment are inspected by a competent person at intervals set by the manufacturer but in no case less than once per year. Records must be maintained including the dates of inspections, and necessary repairs made.

(vii) Modifications or additions to the digger derrick and its associated equipment that alter its capacity or affect its safe operation must be made only with written certification from the manufacturer, or other equivalent entity, such as a nationally recognized testing laboratory, that the modifications results in the equipment being safe for its intended use. Such changes must require the changing and posting of revised capacity and instruction decals or plates. These new ratings or limitations must be as provided by the manufacturer or other equivalent entity.

(viii) Synthetic rope must be used in accordance with the manufacturer's specifications and guidelines for the load(s) intended and the equipment being used.

Note: Digger derricks are now being supplied with synthetic rope hoist lines and worn out wire rope hoist lines may be replaced with synthetic ropes, depending on the hoist drum's storage capacity, compatibility and manufacturer's guidance.

(ix) The use of rope that shows any sign of aging, chemical contamination or wear must not be used.

Note: If you are in doubt of the line's condition, take it out of service and have a competent person inspect it. If it is found to be unserviceable, tag the worn/damaged rope and render it unusable.

(x) When the bulk of a surface strand of the cover has been reduced by 50 percent or more for a distance along the axis of the rope of four or more rope diameters, a two-in-one, double braided rope must be taken out of service or discarded. If the core is visible through the cover in a localized area, discard the damaged area, you may have the eye respliced by a competent/qualified person.

Note: If the condition is in more than one area, take the rope out of service and have a competent person inspect it or discard the rope

(xi) Pulled strands are a potential hazard for snagging on foreign objects. Make every effort to reincorporate a pulled strand back into the rope. If there are four or more consecutive pulled stands that cannot be reincorporated back into the rope, then the rope must be either respliced above the damaged spot or discarded.

(xii) For ropes with a circumference up to (11.43 cm) 4.5 inches, three or more adjacent cut strands are a sign of severe damage and the rope must be taken out of service, discarded or respliced. For ropes with larger circumferences, cut strands can be increased to four.

(xiii) The rope must not be allowed to build up on one side of the hoist drum, it can slip off and drop the load until the cable tightens up. This creates a shock load on the rope and boom and produces a loss of control of the load.

Notes:

1. A very sudden change in load up or down in excess of ten percent of the line's rated working load constitutes a hazardous shock load and would void most manufacturer's normal working load recommendations.
2. A typical shock load occurs when an object being lifted vertically by a hoist line gets jerked suddenly or is dropped. Under these conditions, a (2268 kg) 5,000 lb. load may increase to the equivalent of (13,608 kg) 30,000 lb., breaking the hoist line.

(xiv) Any rope suspected of undergoing a shock load must be taken out of service and inspected by a competent person.

(xv) Hoist lines used with derricks must be rated for the load and usage as specified by the load chart as required by the manufacturer's specifications.

(xvi) Wire ropes must be taken out of service when any of the following conditions exist:

(A) The rope strength has been significantly reduced due to corrosion, pitting, or excessive heat;

(B) The thickness of the outer wires of the rope has been reduced to two-thirds or less of the original thickness;

(C) There are more than six broken wires in any one rope lay, or three in one strand;

(D) There is excessive permanent distortion caused by kinking, crushing, or severe twisting of the rope; or

(E) When the wire rope fails to meet the manufacturer's inspection criteria.

(e) Pulling equipment.

(i) Collapsible power reels must only be used to string or take up wire, small diameter cable, poly rope, or tape for placing or removing aerial cable, taking down wire, or pulling winch lines into conduits.

(ii) When used for pulling in poly rope or tape, the reel must only be used as a pulling capstan and not as a storage device. A maximum of three wraps is allowed.

Note: Excessive wraps of poly rope or tape will cause a reel to fail.

(iii) At all times during pulling operations the employee must stay out of the bite of the line.

(iv) All other manufacturer requirements and recommendations must be followed.

WAC 296-32-23510 Materials handling and storage.

(1) Poles.

(a) When working with poles in piles or stacks, work must be performed from the ends of the poles and precautions must be taken for the safety of employees at the other end of the pole.

(b) During pole hauling operations, all loads must be secured to prevent displacement. Lights, reflectors and/or flags must be displayed on the end and sides of the load as required by the department of transportation.

(c) The requirements for installation, removal, or other handling of poles in pole lines are prescribed in WAC 296-32-23516 and 296-32-23518 which pertains to overhead lines.

(d) The operator must not leave their position at the controls (while a load is suspended), unless the hoisting machinery is equipped with a positive locking system and for the sole purpose of assisting in positioning the load prior to landing it.

(e) Prior to unloading steel, poles, crossarms, and similar material, the load must be thoroughly examined to ascertain that the load has not shifted, that binders or stakes have not broken, and that the load is not otherwise hazardous to employees.

(2) Cable reels. Cable reels and poles in storage must be checked or otherwise restrained to prevent uncontrollable movement.

(3) All tools and materials must be stored in a safe and orderly manner.

(4) Employees must not carry loose materials, tools, or equipment on or in vehicles in a manner that would constitute a hazard.

(5) All buildings, storage yards, equipment and other property must be kept in a clean, sanitary and orderly manner.

WAC 296-32-23512 Cable fault locating and testing.

(1) Employees involved in cable fault locating and testing must be instructed in the precautions necessary for their own safety and the safety of other employees.

(2) Before voltage is applied to equipment not isolated, all possible precautions must be taken to ensure that no employee can make contact with the energized conductors under test.

(3) Only trained and authorized personnel must repair and test medium and high voltage equipment.

WAC 296-32-23514 Grounding for employee protection—Pole lines.

(1) Power conductors. Electric power conductors and equipment must be considered energized until the utility or utility representative has verified to the telecommunications employer/employee(s) on-site that the line(s) have been deenergized and grounded as listed in subsection (4) of this section. Guidance on grounding for the protection of employees is found in WAC 296-45-345 and must be followed and verified complete before a line can be considered deenergized.

(2) Nonworking open wire. Nonworking open wire communications lines must be bonded to one of the grounds listed in subsection (4) of this section.

(3) Vertical power conduit, power ground wires and street light fixtures.

(a) Metal power conduit on joint use poles, exposed vertical power ground wires, and street light fixtures which are below communications attachments or less than twenty inches above these attachments, must be considered energized and must be tested for voltage unless the employee can visually determine that they are bonded to the communications suspension strand or cable sheath.

(b) If no hazardous voltage is shown by the voltage test, a temporary bond must be placed between such street light fixture, exposed vertical power grounding conductor, or metallic power conduit and the communications cable strand. Temporary bonds used for this purpose must have sufficient conductivity to carry at least five hundred amperes for a period of one second without fusing.

(4) Protective grounding. Acceptable grounds for protective grounding are as follows:

(a) A vertical ground wire which has been tested, approved for use and found safe, provides for 20 kV voltage protection, and is connected to a power system multi-grounded neutral or the grounded neutral of a power secondary system where there are at least three services connected; a 20 kV voltage detector is required for the test.

(b) Communications cable sheath or shield and its supporting strand where the sheath or shield is:

(i) Bonded to an underground or buried cable which is connected to a central office ground; or

(ii) Bonded to an underground metallic piping system; or

(iii) Bonded to a power system multi-grounded neutral or grounded neutral of a power secondary system which has at least three services connected.

(c) Guys which have continuity uninterrupted by an insulator; and are bonded to the grounds specified in (a) and (b) of this subsection and which

(d) If all of the preceding grounds are not available, arrays of driven ground rods where the resultant resistance to ground will be low enough to eliminate danger to personnel or permit prompt operation of protective devices.

(5) Attaching and removing temporary bonds. When attaching grounds (bonds), the first attachment must be made to the protective ground. When removing bonds, the connection to the line or equipment must be removed first. Insulating gloves, suitable for voltage levels that may be encountered, must be worn during these operations.

(6) Temporary grounding of suspension strand.

(a) The suspension strand must be grounded to the existing grounds listed in subsection (4) of this section when being placed on jointly used poles.

(b) Where power crossings are encountered on nonjoint lines, the strand must be bonded to an existing ground listed in subsection (4) of this section as close as possible to the crossing. This bonding is not required where crossings are made on a common crossing pole unless there is an upward change in grade at the pole.

(c) Where traveling roller-type bonds are used, they must be restrained so as to avoid stressing the electrical connections.

(d) Bonds between the suspension strand and the existing ground must be at least No. 6AWG copper.

(e) Temporary bonds must be left in place until the strand has been tensioned, dead-ended, and permanently grounded.

(f) Covered strand (insulated) must be grounded at the reel during stringing operations.

WAC 296-32-23516 Overhead lines.

(1) Handling suspension strand.

(a) When pulling strand off a reel trailer more than two spans there must be a reel tender.

(b) There must be reliable communications between the employee pulling strand and the reel tender.

(c) The employer must ensure that when handling cable suspension strand which is being installed on poles carrying exposed energized power conductors, that all employees that may be exposed, to include the reel tender, must wear insulating gloves, suitable for voltage levels that may be encountered, and must avoid body contact with the strand until after it has been tensioned, dead-ended and permanently grounded.

(d) The strand must be restrained against upward movement during installation:

(i) On joint-use poles, where there is an upward change in grade at the pole; and

(ii) On nonjoint-use poles, where the line crosses under energized power conductors.

(2) Test requirements for cable suspension strand.

(a) Before attaching a splicing platform to a cable suspension strand, the strand must be tested and determined to have strength sufficient to support the weight of the platform and the employee. Where the strand crosses above power wires or railroad tracks it may not be tested but must be inspected in accordance with subsection (3) of this section.

(b) The following method or an equivalent method must be used for testing the strength of the strand: A rope, at least three-eighths inches in diameter, must be thrown over the strand. On joint lines, the rope must be passed over the strand using tree pruner handles or a wire raising tool. If two employees are present, both must grip the double rope and slowly transfer their entire weight to the rope and attempt to raise themselves off the ground. If only one employee is present, one end of the rope which has been passed over the strand must be tied to the bumper of the truck, or other equally secure anchorage. The employee then must grasp the other end of the rope and attempt to raise himself off the ground.

(3) Inspection of strand. Where strand passes over electric power wires or railroad tracks, it must be inspected from an elevated working position at each pole supporting the span in question. The strand may not be used to support any splicing platform, scaffold or cable car, if any of the following conditions exist:

(a) Corrosion so that no galvanizing can be detected;

(b) One or more wires of the strand are broken;

(c) Worn spots; or

(d) Burn marks such as those caused by contact with electric power wires.

WAC 296-32-23518 Wood or other types of poles.

(1) Need for testing wood poles. Unless temporary guys or braces are attached, the following poles must be tested in accordance with subsection (2) of this section and determined to be safe before employees are permitted to climb them:

> **Note**: When work is to be performed on a wood pole, it is important to determine the condition of the pole before it is climbed. The weight of the employee, the weight of equipment being installed, and other working stresses (such as the removal or retensioning of conductors) can lead to the failure of a defective pole or one that is not designed to handle the additional stresses. For these reasons, it is essential that an inspection and test of the condition of a wood pole be performed before it is climbed.

(a) Dead-end poles, except properly braced or guyed "Y" or "T" cable junction poles;

(b) Straight line poles which are not storm guyed and where adjacent span lengths exceed one hundred sixty-five feet;

(c) Poles at which there is a downward change in grade and which are not guyed or braced corner poles or cable junction poles;

(d) Poles which support only telephone drop wire; and

(e) Poles which carry less than ten communications line wires. On joint use poles, one power line wire must be considered as two communication wires.

(2) Testing of wood poles.

(a) The employer must develop test methods that can be used in ascertaining whether a wood pole is capable of sustaining the forces that would be imposed by an employee climbing the pole.

(b) The employer must ascertain that the pole can sustain all other forces that will be imposed by the work to be performed.

(c) The following method or an equivalent method must be used for testing wood poles:

(i) Rap the pole sharply with a lineman's hammer, starting near the ground line and continuing upwards circumferentially around the pole to a height of approximately 6 feet. The hammer will produce a clear sound and rebound sharply when striking sound wood. Decay pockets will be indicated by a dull sound and/or a less pronounced hammer rebound. When decay pockets are indicated, the pole must be considered unsafe.

(ii) The pole must be prodded below or as near the ground line as possible using a pole prod or a screwdriver with a single blade at least five inches long, driving it in at a forty-five degree angle towards the center of the pole.

(iii) Apply a horizontal force to the pole and attempt to rock it back and forth in a direction perpendicular to the line. Caution must be exercised to avoid causing power lines to swing together. The force may be applied either by pushing with a pike pole or pulling with a rope. If the pole cracks during the test, it must be considered unsafe.

(d) The pole should be inspected for cracks. Horizontal cracks perpendicular to the grain of the wood may weaken the pole. Vertical ones, although not considered to be a sign of a defective pole, can pose a hazard to the climber, and the employee must keep his or her gaffs away from them while climbing.

(e) The presence of any of these conditions is an indication that the pole may not be safe to climb or to work from. The employee performing the inspection must be qualified to make a determination as to whether or not it is safe to perform the work without taking additional precautions.

(f) Unsafe poles or structures.

(i) Poles or structures determined by a qualified employee to be unsafe by test or observation may not be climbed until made safe by guying, bracing or other means.

(ii) Poles determined to be unsafe to climb must, until they are made safe, be marked in a conspicuous place to alert and warn all employees of the unsafe condition and the owner of the pole must be notified of its condition.

(3) Handling poles near energized power conductors.

(a) Qualified employees permitted to set, remove or handle poles which could inadvertently encroach the minimum approach distance must be trained in:

(i) The proper use of the special precautionary techniques;

(ii) Personal protective equipment;

(iii) Insulating and shielding materials;

(iv) Insulated tools for working near exposed energized parts or overhead electrical lines and equipment;

(v) Skills and techniques necessary to determine the nominal voltage of exposed live lines and parts; and

(vi) The minimum approach distances in Table 6 of this section.

(b) A designated employee other than the equipment operator must observe the approach distance to exposed lines and equipment and give timely warnings before the minimum approach distance required by Table 6 of this section is reached, unless the employer can demonstrate that the operator can accurately determine that the minimum approach distance is being maintained.

(c) Where a hazard of a power contact exists, due to use of long handled tools, proper rubber equipment must be used.

(d) Joint use poles may not be set, moved, or removed where the nominal voltage of open electrical power conductors exceeds 34.5 kV phase to phase or 20 kV phase to ground.

(e) Poles that are to be placed, moved or removed during heavy rains, sleet or wet snow in joint lines carrying more than 8.7 kV phase to phase voltage or 5 kV phase to ground must be guarded or otherwise prevented from any contact with overhead energized power conductors.

(f) (i) In joint lines where the power voltage is greater than 600 volts but less than 34.5 kV phase to phase or 20kV phase to ground, wet poles being placed, moved or removed must be insulated with either a rubber insulating blanket, a fiberglass box guide, or equivalent protective equipment.

(ii) In joint lines where the power voltage is greater than 8.7 kV phase to phase or 5 kV phase to ground but less than 34.5 kV phase to phase or 20 kV phase to ground, dry poles being placed, moved, or removed must be insulated with either a rubber insulating blanket, a fiberglass box guide, or equivalent protective equipment.

(iii) Where dry or wet poles are being removed, insulation of the pole is not required if the pole is cut off two feet or more below the lowest power wire and also cut off near the ground line.

(h) The guard or insulating material used to protect the pole must meet the appropriate three- Insulating gloves must be worn when handling the pole with either hands or tools, when there exists a possibility that the pole may contact a power conductor. Where the voltage to ground of the power conductor exceeds 15 kV to ground, Class II gloves (as defined in ASTM D 120-09a) must be used. For voltages not exceeding 15 kV to ground, insulating gloves must have a breakdown voltage of at least 17 kV minute proof test voltage requirements contained in:

(i) ASTM D 178-01, 2010, Standard Specification for Rubber Insulating Matting;

(ii) ASTM D 1048-12, Standard Specification for Rubber Insulating Blankets;

(iii) ASTM D 1049-98, 2010, Standard Specification for Rubber Insulating Covers; and

(iv) ASTM F 712-06, 2011, Standard Test Methods and Specifications for Electrically Insulating Plastic Guard Equipment.

(i) Reserved.

(j) If, during operation of the mechanical equipment, the equipment could become energized, the operation must also comply with at least one of the following:

(i) The energized lines must be covered with insulating protective material that will withstand the type of contact that might be made during the operation.

(ii) The equipment must be insulated for the voltage involved. The equipment must be positioned so that its uninsulated portions cannot approach the lines or equipment any closer than the minimum approach distances specified in Table 6 of this section.

(iii) Each employee must be protected from hazards that might arise from equipment contact with the energized lines. The measures used must ensure that employees will not be exposed to hazardous differences in potential.

(k) When there is a possibility of contact between the pole or the vehicle-mounted equipment used to handle the pole, and an energized power conductor, the following precautions must be observed:

(i) Employ insulating protective equipment or barricades to guard against any hazardous potential differences.

(ii) When on the vehicle which carries the derrick, avoid all contact with the ground, with persons standing on the ground, and with all grounded objects such as guys, tree limbs, or metal sign posts. To the extent feasible, remain on the vehicle as long as the possibility of contact exists.

(iii) When it is necessary to leave the vehicle, step onto an insulating blanket and break all contact with the vehicle before stepping off the blanket and onto the ground. As a last resort, if a blanket is not available, the employee may jump cleanly from the vehicle then take short steps or shuffle away from the vehicle.

(iv) When it is necessary to enter the vehicle, first step onto an insulating blanket and break all contact with the ground, grounded objects and other persons before touching the truck or derrick.

(4) Working position on poles or structures. Climbing and working is prohibited above the level of the lowest electric power conductor on the pole or structure (exclusive of vertical runs and street light wiring), except:

(a) Where communications facilities are attached above the electric power conductors, and a rigid fixed barrier is installed between the electric power facility and the communications facility; or

(b) Where the electric power conductors are cabled secondary service drops carrying less than 300 volts to ground and are attached forty inches or more below the communications conductors or cables.

(5) Neither the employer nor the employees shall throw or permit anything to be thrown from elevated position(s) or poles to the ground or lower level, nor must anything be thrown from the ground or lower level to an elevated position, whether that elevated position is on a pole, tower, aerial manlift or otherwise. Tools and loose materials must not be left on poles, towers, ladders or other elevated structures or positions.

(6) Other elevated locations. Approved harnesses and lanyards or lineman's belts and straps must be worn when working at elevated positions on poles or similar structures, which do not have guarded work areas.

(7) Installing and removing wire and cable. Before installing or removing wire or cable, the pole or structure must be guyed, braced, or otherwise supported, as necessary, to prevent failure of the pole or structure.

(8) Avoiding contact with energized power conductors or equipment. When cranes, digger derricks, or other mechanized equipment are used for setting, moving, or removing poles, all necessary precautions must be taken to avoid contact with energized power conductors or equipment by maintaining the minimum approach distance applicable to the voltage located in Table 6 of this section.

(9) Support structures.

(a) No employee, or any material or equipment, shall be supported or permitted to be supported on any portion of a pole structure, platform, ladder, walkway or other elevated structure or aerial device unless the employer ensures that the support structure is first inspected by a competent person and it is determined to be strong, in good working condition and properly secured in place.

(b) Employees must not throw anything from pole to ground, from pole to pole or from ground to pole.

(10) Power exposures.

(a) The employer must ensure that no employee approaches or takes any conductive object closer to any electrically energized overhead power lines and parts than prescribed in Table 6 of this section unless:

(i) The energized parts are insulated or guarded from the employee and any other conductive object at a different potential; or

(ii) The power conductors and equipment are deenergized and grounded.

(b) While handling communication wires, metal sheaths, or communication equipment, contact must be avoided with street lamp brackets, trolley span wires, power guys, and any other power equipment that may be energized. The safest possible working position must be assumed before starting work.

(c) Communication employees must never work in the pole space on jointly used poles between normal primary and secondary attachments.

Table 6

Minimum Approach Distances to Exposed Energized Overhead Powerlines and Parts

Voltage in Kilovolts Phase to Phase or Phase-to Ground	Distance to Employee Phase-to-Phase or Phase-to Ground (ft-in)
0 to 0.050	Not Specified
0.51 to 0.300	Avoid Contact
0.301 to 0.750	1-6
0.751 to 15	3-0
15.1 to 36.0	3-6
36.1 to 46.0	4-0
46.1 to 72.5	4-6
Voltage in Kilovolts Phase-to Phase or Phase-to-Ground	Distance to Employee from Energized Part Without Tools Phase-to-Phase or Phase-to-Ground (ft-in)
72.6 to 121	5-6
121.1 to 145	6-6
145.1 to 169	7-0
169.1 to 242	10-6
242.1 to 362.0	15-6
362.1 to 420.0	18-4
420.1 to 550.0	22-0
550.1 to 800.0	27-9

WAC 296-32-23520 Telecommunications line tree trimming and emergency work.

(1) General.

(a) Employees engaged in pruning, trimming, removing, or clearing trees from lines must be required to consider all overhead and underground electrical power conductors to be energized with potentially fatal voltages, never to be touched (contacted) either directly or indirectly and comply with Table 7 of this section for minimum approach distances.

(b) Line clearance tree trimming operations exposing employees to electrical hazards must be addressed by qualified line clearance tree trimmers covered under chapter 296-45 WAC.

(c) Employees engaged in line-clearing operations must be instructed that:

(i) A direct contact is made when any part of the body touches or contacts an energized conductor, or other energized electrical fixture or apparatus.

(ii) An indirect contact is made when any part of the body touches any object in contact with an energized electrical conductor, or other energized fixture or apparatus.

(iii) An indirect contact can be made through conductive tools, tree branches, truck equipment, or other objects, or as a result of communications wires, cables, fences, or guy wires being accidentally energized.

(iv) Electric shock will occur when an employee, by either direct or indirect contact with an energized conductor, energized tree limb, tool, equipment, or other object, provides a path for the flow of electricity to a grounded object or to the ground itself. Simultaneous contact with two energized conductors will also cause electric shock which may result in serious or fatal injury.

(e) Before any work is performed in proximity to energized conductors, the system operator/owner of the energized conductors must be contacted to ascertain if they know of any hazards associated with the conductors which may not be readily apparent. This rule does not apply when operations are performed by the system operator/owner.

(2) Working in proximity to potential electrical hazards.

(a) Employers must ensure that a close inspection is made by the employee and by the crewleader or supervisor in charge before climbing, entering, or working around any tree, to determine whether an electrical power conductor passes through the tree, or passes within reaching distance of an employee working in the tree. If any of these conditions exist either directly or indirectly, an electrical hazard must be considered to exist unless the system operator/owner has caused the hazard to be removed by deenergizing the lines, or installing protective equipment.

(b) Qualified line clearance tree trimmers or trainees must comply with Table 7 below:

Table 7

Minimum Working Distances from Energized Conductors for Line-Clearance Tree Trimmers and Line-Clearance Tree-Trimmer Trainees

Voltage in Kilovolts Phase-to-Phase or Phase-to-Ground	Distance to Employee Phase-to-Phase or Phase-to-Ground (ft-in)
0 to 0.050	Not Specified
0.051 to 0.300	Avoid Contact
0.301 to 0.750	1-6
0.751 to 15	3-0
15.1 to 36.0	3-6
36.1 to 46.0	4-0
46.1 to 72.5	4-6
Voltage in Kilovolts Phase to-Phase or Phase-to Ground	Distance to Employee from Energized Part Without Tools Phase-to-Phase or Phase-to-Ground (ft-in)
72.6 to 121	5-6
121.1 to 145	6-6
145.1 to 169	7-0
169.1 to 242	10-6
242.1 to 362	15-6
362.1 to 420.0	18-4
420.1 to 550.0	22-0
550.1 to 800.0	27-9

(c) Rubber footwear, including lineman's overshoes, must not be considered as providing any measure of safety from electrical hazards.

(d) Ladders, platforms, and aerial devices, including insulated aerial devices, may not be brought in contact with an electrical conductor. Reliance must not be placed on their dielectric capabilities.

(e) When an aerial lift device contacts an electrical conductor, the truck supporting the aerial lift device must be considered as energized.

WAC 296-32-23522 Line patrol and work on aerial plants.

A minimum of two persons, one of whom must be a qualified person, must be used for line patrol duty at night when observing the overhead line and driving the vehicle must be done simultaneously. If repair to lines or equipment is found to be of such nature as to require two qualified employees, work must not proceed until additional help has been obtained provided that in cases of emergency where delay would increase the danger to life, limb, or substantial property, one employee may clear the hazard without assistance. Whenever natural light is insufficient to illuminate the worksite, artificial illumination must be provided to enable the employee to perform the work safely.

WAC 296-32-23523 Storm work and emergency conditions.

(1) Since storm work and emergency conditions create special hazards, only authorized representatives of the electric utility system operator/owner or a qualified tree trimmer per chapter 296-45 WAC and not telecommunication employees may perform tree work in these situations where energized electrical power conductors are involved.

(2) When an emergency condition develops due to tree operations, work must be suspended and the electric utility system operator/owner must be notified immediately.

(3) Telecommunication employers must not allow their employees to perform any storm damage work until given the all clear that it is safe to enter an area by the electrical utility system operator/owner.

(4) During storm damage recovery operations and after the utility has given the all clear, all employees working on communications suspension strand and conductive cables must use insulated gloves and an approved voltage detector (20 kV) to test for voltage.

WAC 296-32-23524 Underground lines and cable vaults.

Underground/buried communication lines.

(1) No employer shall permit an employee to work in such proximity to any part of an electric power circuit that the employee could contact the electric power circuit in the course of work, unless the employee is protected against electric shock by deenergizing the circuit and grounding it or by guarding it effectively by insulation or other means.

(2) No person, firm, corporation, or agent of same, shall require or permit any employee to perform any function in proximity to electrical conductors or to engage in any excavation, construction, demolition, repair, or other operation, unless and until danger from accidental contact with said electrical conductors has been effectively guarded by deenergizing the circuit and grounding it or by guarding it by effective insulation or other effective means.

(3) In work areas where the exact location of underground electric powerlines is unknown, no activity which may bring employees into contact with those powerlines must begin until the powerlines have been positively and unmistakably deenergized and grounded.

(4) Before work is begun the employer must ascertain by inquiry or direct observation, or by instruments, whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electric power circuit. The employer must post and maintain proper warning signs where such a circuit exists. The employer must advise employees of the location of such lines, the hazards involved, and the protective measures to be taken.

WAC 296-32-23526 Directional boring machines.

(1) Surface encumbrances. All surface encumbrances that are located so as to create a hazard to employees must be removed or supported, as necessary, to safeguard employees.

(2) Underground installations.

(a) The location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, must be located prior to opening an excavation.

(b) Utility companies or owners must be contacted within established or customary local response times, advised of the proposed work, and asked to locate the underground utility installation prior to the start of actual excavation.

CALL BEFORE YOU DIG:

From a Cell Phone: Call 811 – Will connect nationwide

From a Land Line: 1-800-424-5555

(3) A walk around safety inspection must be conducted to evaluate and address all potential hazards.

(4) Appropriate PPE requirements must be determined prior to commencing work.

(5) Verify utility locations.

(a) When excavation/directional boring operations approach the location of underground installations, the exact location of the installations must be determined by safe and acceptable means.

(b) While the excavation is open, underground installations must be protected, supported, or removed as necessary to safeguard employees.

(6) Operator training. Operators of drilling, tracking and support equipment must be trained and the employer must certify that each employee has received the training needed.

> **Note**: Employment records that indicate that an employee has received the needed training are an acceptable means of meeting this requirement. Additional training requirements are located in WAC 296-32-22525.

(7) Field operations.

(a) The drill must not be operated without direct, two-way communication between the drill operator and drill locator and/or exit side personnel.

(b) Mechanical breakout wrenches must be used.

(c) Pipe wrenches must not be used as mechanical breakout wrenches.

(8) Electrical hazards.

(a) You must follow manufacturer's recommendations when operating this machinery. Electrical sensing stakes must be driven into the ground and the strike alert system tested prior to operation. The stake must be located a minimum of six feet from the machine.

(b) Any time you drill where electrical hazards may be present you must use the appropriate PPE, including the rubber insulation equipment listed below. (For more information, see WAC 296-32-22550 Rubber insulation equipment.)

(i) Rubber insulating gloves, including protectors for gloves.

(ii) Rubber insulating blankets.

(iii) Rubber insulating boots.

(iv) Other rubber insulating equipment, when applicable.

(c) The employer must make sure that no one touches the drilling machine when in use.

(9) Lock out/tag out. You must use energy control procedures to protect employees servicing, maintaining or performing procedures on machines and equipment that may have potentially hazardous energy.

> **Note**: Additional requirements relating to lock out/tag out are located in chapter 296-803 WAC.

(10) Emergency response. If an existing utility is struck during the boring operation, employees must be trained in emergency procedures to reduce the likelihood of injury.

Types of strikes include:

(a) Electrical;

(b) Gas;

(c) Fiber optic;

(d) Communication lines;

(e) Sanitary/storm sewer and water.

(11) The employer must make sure that barricades are used for the protection of employees and the public when the drilling machine is in use.

WAC 296-32-23528 Manholes, street openings and vaults.

(1) Guarding manholes and street openings.

(a) When covers of manholes or vaults are removed, the opening must be promptly guarded by a railing, temporary cover, or other acceptable temporary barrier to prevent an accidental fall through the opening and to protect employees working in the manhole from foreign objects entering the manhole.

(b) When work is to be performed on underground plant, the immediate foreman in charge and/or the craftsman assigned to do the work must make a complete job hazard assessment of the work location in regard to the hazards that are created or that could exist prior to beginning the work in underground plant.

(c) The immediate foreman and/or the craftsman responsible for the job completion must be in agreement of the proper method of eliminating or reducing any hazards that are present or could be caused by the location of the worksite, before the job proceeds.

(2) Requirements prior to entry of manholes and unvented vaults.

(a) The internal atmosphere must be tested for oxygen deficiency and combustible gas.

(b) Mechanical forced air ventilation must be in operation at all times when employees are required to be in the manhole.

(c) The mechanical forced air equipment provided must be of a quantity to replace the exhausted air and must be tempered when necessary.

(d) Ventilation equipment must be designed in such a manner that employees will not be subjected to excessive air velocities.

> **Note**: For additional requirements relating to confined spaces see chapter 296-809 WAC.

WAC 296-32-23530 Joint power and telecommunication manholes and vaults.

(1) While work is being performed in manholes or vaults occupied jointly by an electric utility and a telecommunication utility;

(a) The employer must demonstrate that the employee will be protected from all electrical hazards;

(b) An employee with basic first-aid training must be available in the immediate vicinity to render emergency assistance as required;

(c) An employee is not to be precluded from occasionally entering a manhole to provide assistance other than in an emergency.

(2) In manholes or vaults where energized cables or equipment are in service, an employee working alone may only enter, for brief periods of time, for the purpose of inspection, housekeeping, taking readings, or similar work.

> **Note**: Entry procedures meeting the criteria of WAC 296-809-60002 are deemed acceptable. All other entry requirements fall under the permit entry procedures as defined in chapter 296-809 WAC.

WAC 296-32-23532 Ladders for underground access.

(1) Ladders must be used to enter and exit manholes exceeding four feet in depth.

(2) Metal and fiberglass manhole ladders must be free of structural defects and free of accident hazards such as sharp edges and burrs. The metal must be protected against corrosion unless inherently corrosion-resistant. These ladders may be designed with parallel side rails, or with side rails varying uniformly in separation along the length (tapered) or with side rails flaring at the base to increase stability.

(3) The spacing of rungs or steps must be on twelve-inch centers.

(4) Connections between rungs or steps and side rails must be constructed to ensure rigidity as well as strength.

(5) Rungs and steps must be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize the possibility of slipping.

(6) Ladder hardware must meet the ladder's component parts and must be of a material that is protected against corrosion unless inherently corrosion-resistant. Metals must be so selected as to avoid excessive galvanic action.

WAC 296-32-23534 Tent heater, torches and open flames.

When open flames must be used in manholes, the following precautions must be taken to protect against the accumulation of combustible gas:

(1) A test for combustible gas must be made immediately before using any open flame device.

(2) A fuel tank (e.g., acetylene) may not be in the manhole unless in actual use.

(3) Open flames must not be used within ground tents or on platforms within aerial tents unless:

(a) The tent covers are constructed of fire resistant materials; and

(b) Ventilation is provided to maintain safe oxygen levels and avoid harmful buildup of combustion products and combustible gases.

WAC 296-32-23536 Lead work.

(1) Employer program requirements.

(a) General activities exposing employees to lead hazards the employer must follow the requirements located in WAC 296-62-07521.

(b) Construction activities exposing employees to lead hazards must follow the requirements located in WAC 296-155-176.

(2) When operated from commercial power the metal housing of electric solder pots must be grounded. Electric solder pots may be used with the power equipment described in WAC 296-32-22540 (6) and (7), without a grounding conductor.

(3) Wiping gloves or cloths and eye protection must be used in lead wiping operations.

(4) A drip pan to catch hot lead drippings must be provided and used.

PART C—REQUIREMENTS THAT APPLY TO WIRELESS

Note: Wireless – This part is intended to convey to the employer the responsibilities for the training and protection of their employees working with or upon telecommunications wireless facilities and field installations.

WAC 296-32-24005 Wireless communications—General requirements.

(1) In addition to the requirements of WAC 296-32-22515 the employer must ensure that at least two employees on-site are trained and hold current certifications in basic first aid and cardiopulmonary resuscitation (CPR) issued by the American Red Cross or any other organization whose standards are equivalent to the American Red Cross. Employees working alone must have basic first-aid training and hold a valid first-aid certificate.

(2) Training.

(a) In order for employees to work at heights above four feet, they must be authorized and approved for such work by the employer and/or a competent person.

(b) Training of employees must be performed by a qualified person able to perform such training.

(c) The employer's written work procedures must be provided to employees as part of their training.

(d) Pictures and symbols may be used as a means of instruction if employee understanding is improved using this method.

(e) The employer must ensure that each employee working at heights above four feet has been trained in all of the following areas:

(i) The nature of fall hazards in the work area;

(ii) The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used;

(iii) The correct procedures for inspecting fall protection equipment for wear, damage, defect, or deterioration;

(iv) Climbing methods and safety procedures;

(v) The use and operation of the fall protection systems used by the employer, as described in WAC 296-32-22555;

(vi) Identify the duties and responsibilities of various roles, as documented in the fall protection work plans;

(vii) The compatibility of fall protection equipment and fall protection systems.

> **Note**: For establishing and maintaining a program for the control and monitoring of nonionizing radiation hazards (RFR), see WAC 296-32-22572 for additional requirements.

(3) Telecommunications work on high voltage transmission towers and power/utility poles.

(a) Only high voltage lineman or telecommunications/tower employees with equivalent training for working on transmission towers/utility/power poles as required in WAC 296-45-065 are allowed to work on such structures.

(b) Employees must have the skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment.

(c) Employees must have the skills and techniques to determine the nominal voltage of exposed live parts.

(d) Employees must know the minimum approach distances to the voltages to which the employees will be exposed to and measures must be taken to ensure employees and conductive objects will not enter the minimum approach distance. See Table 6 in WAC 296-32-23518.

(e) Employees must be trained and address inductance hazards.

(4) Training program documentation and records to include in-house.

(a) The employer must document that each employee has been trained with a record that includes all of the following:

(i) The identity of the person trained;

(ii) The signature of the employer or the qualified person who conducted the training;

(iii) The date that training was completed;

(iv) A detailed description of the training.

(b) The employer must maintain a copy of the training lesson plan for each topic of instruction.

(c) The employer must prepare the record at the completion of the training required by these rules and must be maintained for five years.

(d) The most current record must be kept available for review by the director of the department of labor and industries or his or her designee, upon request.

(e) The employer may only accept training records for previous training by an accredited institute or school, or in-house training if:

(i) The employer verifies that all training and knowledge is up-to-date and applicable to the new employee's job duties; and

(ii) The employee must also demonstrate proficiency in the duties they are required to perform.

(f) In order to fulfill responsibilities under the provisions of the rules in this section, the employer must, upon request, provide the department of labor and industries or his or her designee access to the following records:

(i) Training records. All material related to the employer's training and education program, see WAC 296-32-22525;

(ii) Medical records and nonionizing radiation exposure records. All medical records and material related to each analysis using exposure or medical records must comply with chapter 296-802 WAC;

(iii) Equipment inspections and testing records. All material related to the modification, repair, test, calibration or maintenance service of all equipment.

(5) A site specific safety plan must be located on-site and include the following:

(a) The site address to include the coordinates and directions to the site, and local emergency response agency contact information.

(b) The hazard assessment as required in subsections (6) through (8) of this section.

(c) The fall protection work plan as required in WAC 296-32-24012(11).

(d) Emergency procedures including rescue procedures as required in WAC 296-32-24018.

(6) The employer must ensure that a structure hazard assessment is performed to identify, assess, and control employee exposure to hazards as required by these rules and any other applicable state or federal statutes, rules, or regulations. Hazard assessments required by this rule must be documented as follows:

(a) Initially and daily for each site by a competent person prior to permitting employees to climb the structure.

(b) When safety and health information or change in workplace conditions indicates that a new or increased hazard may be present.

(7) The hazard assessments required by this rule must do the following:

(a) Be performed by a competent person.

(b) Evaluate and approve new equipment, materials, and processes for hazards before they are introduced into the workplace.

(c) The contract employer must verify the structural analysis for construction, demolition, and modification of communication structures, antenna supporting structures, mounts, structural components, guy assemblies, insulators and foundations, when required. Refer to ANSI/TIA 222-G, 2014 and Telecommunication construction standards, ANSI/TIA – 322, 2016 and ANSI/ASSE A10.48, 2016.

(d) Identify meteorological conditions that could affect work at heights above four feet on a tower, such as high winds, heat, cold, lightning, rain, snow, or sleet.

(e) Working on towers shall be prohibited during adverse weather conditions.

> **Note**: Thunderstorms in the immediate vicinity, high winds, heat, cold, lightning, rain, snow, or sleet are examples of adverse weather conditions that are presumed to make this work too hazardous to perform, except under emergency conditions.

(8) If hazards are identified, the employer must assess the severity of identified hazards and implement means to control such hazards, including providing employees with personal protective equipment (PPE) designed to control the identified hazards and ensuring the proper training and use of the PPE by the employees.

(9) Climbing facilities.

(a) If climbing pegs are missing and/or the safety climb's condition is outside the manufacturer's specifications, an alternate means to access the structure must be used.

(b) Climbing space must be kept clear of obstructions or if the climbing space and facility are obstructed, approved climber attachments must be installed to maintain 100 percent fall protection.

(c) These rules must not require the retrofitting of communication climbing facilities provided that employees who are exposed to fall hazards above four feet while performing work on communication towers are protected from such hazards by means of a 100 percent fall protection system.

(d) If access to the tower is obstructed, the employer must notify the owner of the antenna/communication system and the tower owner and an alternate means must be utilized to access the tower.

(10) Communication tower/structure evaluation.

(a) The structural integrity, safety systems and loading capacities of the structure must be maintained per the engineered design.

(b) Maintenance and condition assessment must be conducted in accordance with ANSI/TIA 222-G, 2014:

(i) Three-year intervals for guyed towers, and five-year intervals for self-supporting structures and monopoles or in accordance with the schedule established by the engineer of record for the structure owner.

(ii) After severe wind and/or ice storms or other extreme conditions.

(iii) At shorter intervals when the structure has been exposed to corrosive environments or are in areas subject to vandalism.

WAC 296-32-24010 Antenna work-radio transmitting stations 3-30 MHZ.

(1) Prior to grounding a radio transmitting station antenna, the employer must ensure that the rigger in charge:

(a) Prepares a danger tag signed with their signature;

(b) Requests the transmitting technician to shutdown the transmitter and to ground the antenna with its grounding switch;

(c) Is notified by the transmitting technician that the transmitter has been shutdown; and

(d) Tags the antenna ground switch and verifies with the transmitting technician after the antenna has been grounded.

(2) Power must not be applied to the antenna, nor shall the grounding switch be opened under any circumstances while the tag is affixed.

(a) Where no grounding switches are provided, grounding sticks must be used, one on each side of line, and tags must be placed on the grounding sticks, antenna switch, or plate power switch in a conspicuous place.

(b) To further reduce excessive radio frequency pickup, ground sticks or short circuits must be placed directly on the transmission lines near the transmitter in addition to the regular grounding switches.

(c) In other cases, the antenna lines may be disconnected from ground and the transmitter to reduce pickup at the point in the field.

(3) All radio frequency line wires must be tested for pickup with an insulated probe before they are handled either with bare hands or with metal tools.

(4) The employer must ensure that the transmitting technician warn the riggers about adjacent lines which are, or may become energized.

(5) The employer must ensure that when antenna work has been completed, the rigger in charge of the job returns to the transmitter, notifies the transmitting technician in charge that work has been completed, and personally removes the tag from the antenna ground switch.

WAC 296-32-24012 Fall protection.

In addition to the following requirements also see WAC 296-32-22555.

(1) The employer must ensure that at least two qualified climbers are on-site at all times when employees are exposed to fall hazards above four feet.

(2) The employer must require employees to adhere to acceptable conditions for access, prior to climbing the tower at heights above four feet.

(3) Prior to employees being exposed to elevations above four feet, the employer must ensure that 100 percent fall protection systems compatible with the tasks assigned are provided, used, and maintained as required in this chapter and in accordance with the manufacturer's specifications.

(4) In addition to the requirements of WAC 296-32-24005 (5) through (7), all of the following must occur prior to employees climbing the tower at heights above four feet:

(a) The planning and inspections must be performed and documented.

(i) All projects requiring climbing must be planned by a competent person.

(ii) The documentation must be maintained on-site while work is being performed.

(iii) The documentation must include the date of the planning and inspection, the name of the competent person performing the planning and inspection, and the site location.

(b) All climbing facilities must be visually inspected daily at the tower base by a competent person for rust, corrosion, deterioration, structural, mechanical, or other hazards on the climbing facilities that could lead to death or injury of an employee in the performance of their duties. Additionally, the climbing facilities must be visually inspected for these items as the employees ascend to the elevation point where work is being performed. If any such hazard is identified during this inspection, employees must not use the climbing facility until such hazards are abated.

(c) Components of a fall protection system (including anchor points) and the fall protection equipment used by employees must be compatible with one another.

(d) Employees must use engineered anchor points or anchor points designated by a competent person.

Note: Additional requirements relating to cranes and personnel lifting are located in chapter 296-155 WAC, Part L.

(5) An employer must comply with the requirements of this section in one of the following ways:

(a) Require employees to use the 100 percent fall protection systems.

(b) If the fall protection systems described in this section are not present or do not meet the manufacturer's specifications, the employer must not permit employees to climb the tower at heights above four feet unless an alternative means of access to the work area is used such as an aerial lift, elevated work platform or other engineered systems.

(6) Positioning device system specifications. Positioning device systems must be used in conjunction with 100 percent fall protection systems and their use must conform to the following provisions:

(a) Positioning harnesses or full body harnesses must be used.

(b) Positioning devices must be rigged to prevent an employee from a free fall greater than two feet.

(c) Positioning devices must be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or three thousand pounds (13.3 kN), whichever is greater.

(d) Connectors must be drop forged, pressed or formed steel, or made of equivalent materials.

(e) Connectors must have a corrosion-resistant finish, and all surfaces and edges must be smooth to prevent damage to interfacing parts of this system.

(f) Connecting assemblies must have a minimum breaking strength of five thousand pounds (22.2 kN).

(g) D-rings and snap hooks must be proof-tested to a minimum tensile load of three thousand six hundred pounds (16 kN) without cracking, breaking, or taking permanent deformation.

(h) Snap hooks must be a locking type snap hook designed and used to prevent disengagement of the snap hook by the contact of the snap hook keeper by the connected member.

(i) Reserved.

(j) Unless the snap hook is designed for the following connections, snap hooks must not be engaged:

(i) Directly to webbing, rope or wire rope;

(ii) To each other;

(iii) To a D-ring to which another snap hook or other connector is attached;

(iv) To a horizontal lifeline; or

(v) To any object which is incompatibly shaped or dimensioned in relation to the snap hook such that unintentional disengagement could occur by the connected object being able to depress the snap hook keeper and release itself.

(7) Vertical lifelines.

(a) All employees suspended from a boatswain's chair or rope descent system must use an independent fall arrest system where the fall arrest anchorage is separate from the suspension system anchorage.

(b) All employees must be connected at all times to the fall arrest system while they are suspended.

(c) All rope used for suspended personnel must have a minimum breaking strength of five thousand pounds for each employee.

(d) Rope used for suspended personnel must not be used for material handling.

(e) The design of a descent control mechanism must prevent the device from causing an uncontrolled descent.

(f) The design of the manual descent device must permit operation only when rigged in the correct manner.

(8) Self-rescue devices. Self-rescue devices are not a fall protection system. Self-rescue devices used to self-rescue after a fall must meet the following requirements:

(a) Use self-rescue devices according to the manufacturer's instructions; and

(b) Self-rescue devices must be addressed by the fall protection work plan.

(9) When working from an aerial lift/crane basket:

(a) Employees must maintain 100 percent fall protection;

(i) When accessing the tower/structure from the aerial lift/crane basket the employee must first tie-off to the tower/structure; and

(ii) After tying-off to the tower/structure the employee must then immediately unhook from the aerial lift/crane basket and access the tower.

Note: An approved break away lanyard may be used to maintain 100 percent fall protection.

(b) Employees must maintain 100 percent fall protection:

(i) When accessing the aerial lift/crane basket from the tower/structure the employee must first tie-off to the aerial lift/crane basket; and

(ii) Then immediately access the aerial lift/crane basket; and

(iii) Then immediately unhook from the tower/structure.

Note: If all the requirements in subsection (9) of this section are met, the aerial lift guardrails may be used to access the tower and get back into the aerial platform.

(10) Ladder safety systems and related support systems for climbing facilities that are used by employees as a means of 100 percent fall protection must conform to all of the following criteria:

(a) Prior to climbing the structure, a competent person must ensure that the ladder safety system has been inspected for proper operation and that all components used with the ladder safety system are compatible.

(b) To perform an inspection, the competent person must do all of the following:

(i) Approach the ladder at the base and connect to the functional safety climb system.

(ii) Attach to the base of the fall arrest system. If the attachment point is above six feet, then 100 percent fall protection must be used. The 100 percent fall protection must be attached to an alternate approved anchorage point.

(iii) Forcibly engage the device without letting go of the ladder.

(iv) If the device does not function properly, employees must not use the device until it functions properly.

(c) If a climbing facility is obstructed, inhibiting the effective use of the ladder safety system, an alternative means of 100 percent fall protection must be used that is at least as effective as the types of fall protection described by this chapter.

(11) Fall protection work plan. The employer must develop and implement a written fall protection work plan including each area of the work place where the employees are assigned and where fall hazards of ten feet or more exist.

(a) The fall protection work plan must include, but not be limited to:

(i) Identify all fall hazards in the work area;

(ii) Describe the method of fall arrest or fall restraint to be provided;

(iii) Describe the proper procedures for the assembly, maintenance, inspection, and disassembly of the fall protection system to be used;

(iv) Describe the proper procedures for the handling, storage, and securing of tools and materials;

(v) Describe the method of providing overhead protection for employees who may be in, or pass through the area below the worksite;

(vi) Describe the method for prompt, safe removal of injured employees; and

(vii) Be available on the job site for inspection by the department.

(b) Prior to permitting employees into areas where fall hazards exist the employer must ensure employees are trained and instructed in the items described in this section.

WAC 296-32-24014 Work during hours of darkness.

(1) Climbing towers in the hours of darkness must only be done after the job hazard assessment has addressed any additional hazards.

(2) Precautions must be addressed for high voltage hazards when working adjacent to substations or transmission/distribution lines which could create additional electrical hazards.

Notes:

1. For the purpose of this rule, **hours of darkness** means one-half hour before sunset to one-half hour after sunrise.
2. Any ground work and working in the facilities is allowed with adequate lighting, see WAC 296-32-22535(1).

WAC 296-32-24018 Emergency response/rescue requirements.

(1) Emergency response. The employer must establish and document site specific procedures for rescue of employees in the event of an emergency. The employer must designate its own employees to implement the rescue procedures. The documented procedures must be available for review by the director of the Washington state department of labor and industries, or his or her designee, upon request.

(2) For elevated high angle rescue the following measures must be taken:

(a) Ensure at least two competent rescue-trained climbing employees are on-site when employees are working at heights over four feet on the structure. When there are only three employees on-site and one of these employees has been employed for less than twelve months, then that new employee must minimally have documented rescue training which includes steps to be taken in an emergency.

(b) Ensure that personal protective equipment (PPE) and high angle rescue equipment needed to conduct elevated rescues are provided, used, and maintained by the rescue-trained employees.

(c) Train competent rescue employees so they are proficient in the use and maintenance of PPE and high angle rescue equipment needed to conduct elevated rescues.

(d) Train competent rescue employees to perform assigned rescue duties to ensure that they maintain the ability to perform and demonstrate such duties by conducting and documenting simulated rescue operations at least once every twelve months.

(e) The rescue equipment must be used only for rescue and must remain on-site anytime climbers are on towers or other elevated work locations.

(f) The design of the control mechanism must prevent the user of the device from causing an uncontrolled descent.

(g) The design of the manual descent device must permit operation only when rigged in the correct manner and have an automatic lock off.

WAC 296-32-24020 Rigging plan.

(1) A rigging plan is intended to ensure that the proper procedures, equipment and rigging is used for each operation and to ensure that the supporting structure can support the rigging loads. A rigging plan must consider the following items:

(a) Operational and nonoperational construction loads;

(b) Construction equipment;

(c) Supporting structure;

(d) Construction sequence and duration;

(e) Required load testing and field monitoring.

(2) Rigging plan criteria. A rigging plan may be very detailed and complex or very simple, depending on the type of job and the type of equipment necessary to complete the job. The following data must be considered when completing a rigging plan:

(a) General.

(i) Scope of work;

(ii) Construction sequence;

(iii) Duration of construction;

(iv) Monitoring requirements;

(v) Rigging plan classification;

(vi) Gross loads to be lifted;

(vii) Height of lift;

(viii) Operational and nonoperational wind loadings;

(ix) Load lifting restrictions.

(b) Gin poles.

(i) Vertical or tilted position;

(ii) Gin pole identification;

(iii) Load chart reference number;

(iv) Maximum cantilever required;

(v) Forces created by tags;

(vi) Load line size and number of parts.

(c) Basket and bridle attachments. Sling size, type, angle and connection details to the structure and to the gin pole.

(d) Jumping of a gin pole.

(i) Jump line size and number of parts;

(ii) Block sizes and connection details;

(iii) Gin pole attachment details;

(iv) Track details and connections to the structure.

(e) Hoists.

(i) Load chart indicating line pull based on number of layers on the drum;

(ii) Hoist line pull required;

(iii) Cable sizes and breaking strengths;

(iv) Hoist anchorage details;

(v) End connection efficiencies;

(vi) Distance and orientation from tower base.

(f) Crown blocks.
  (i) Block size and capacity;
  (ii) Sling size and applicable rigging hardware;
  (iii) Attachment details to the structure, foundation or other support.

(g) Block size and capacity.
  (i) Sling size and applicable rigging hardware;
  (ii) Attachment details to the structure.

(h) Tag lines.
  (i) Straight or trolley;
  (ii) Size and type of tag line;
  (iii) Tag angle restrictions.

(i) Reserved.

(j) Cranes.
  (i) Main;
  (ii) Tailing;
  (iii) Pedestal;
  (iv) Chicago boom.

(k) Supporting structure.
  (i) Condition assessment;
  (ii) Temporary guys;
  (iii) Reinforcement to support the rigging loads;
  (iv) Procedures for the removal or reinforcing of structural members;
  (v) Procedures for guy replacement;
  (vi) Procedures for guy tensioning;
  (vii) Guy slippage considerations.

(l) Miscellaneous.
  (i) Overhaul ball;
  (ii) Condition of appurtenances to be removed;
  (iii) Interference with climbing facilities;
  (iv) Field welding and cutting procedures.

(3) Rigging plans. For Class II, III and IV rigging plans where a load is raised, lowered or suspended by rigging must have a documented rigging plan. All work that requires rigging must be classified in accordance with the proposed scope of work and classifications as outlined below:

(a) All construction or maintenance activities must have a rigging plan classification outlining the project and the responsibilities within that project. Class II, III and IV rigging plans must have a documented rigging plan.

(b) An on-site competent rigger must be designated for all classes of construction or maintenance to identify hazards, and authorize corrective measures. For Class III and IV activities, a qualified person must coordinate the involvement of a qualified engineer as required when establishing rigging plans. A qualified engineer must perform the analysis of structures and/or components for Class IV activities.

(c) Proposed activities must be outlined in a written rigging plan prior to implementation of a Class I, II, III and IV activities. The minimum level of responsibility for establishing a rigging plan is specified below:

(i) Class I. The minimum level of responsibility is a competent rigger; the scope of work does not affect the integrity of the structure and the proposed rigging loads are minor in comparison to the strength of the structure. Gross lift loads must not exceed three hundred fifty pounds;

Note: This class excludes the use of gin poles or other sophisticated lifting devices

(ii) Class II. The minimum level of responsibility is a competent rigger and the scope of work involves the removal or the addition of appurtenances, mounts, platforms, etc., that involves minor rigging loads in comparison to the strength of the structure. Gross lift loads must not exceed five hundred pounds;

(iii) Class III. The minimum level of responsibility is a competent rigger communicating with a qualified person.

(A) The qualified person may communicate with a qualified engineer for clarification or information.

(B) Gross lift loads for lift systems attached to the structure must not exceed two thousand pounds.

(C) This responsibility includes rigging plans that involve work outside the scope of Class I, II or IV construction.

(D) All new structure and foundation construction must be classified as a minimum Class III plan. Where structure or foundation strength or stability concerns are present, new construction work must be classified as Class IV.

(E) Work may be deemed Class III by a qualified person where component modifications are made to connections of structural members where at least one level of redundancy is maintained at all times, the structural member remains secure and engaged in the bracing system, and the work is completed within a continuous workday (for example, bolt replacements on multi-bolt leg flanges). For component modifications where redundancy is in question, the qualified person must communicate with a qualified engineer for determining the appropriate plan classification. Such communications must be documented and included in the rigging plan.

(F) A qualified person must be involved for all construction or maintenance activities utilizing cranes or other lifting devices not attached to the structure to ensure proper planning communications between all employers and to determine the need for involvement of a qualified engineer.

(iv) Class IV. The minimum level of responsibility is a competent rigger communicating with a qualified person who will be communicating with a qualified engineer. The scope of work involves custom or infrequent construction methods, removal of structural members or unique appurtenances, special engineered lifts, and unique situations;

(v) All gross lift loads for lift systems attached to the structure in excess of two thousand pounds must be considered Class IV;

(vi) Planned lifts for lift systems attached to the structure with load position angles exceeding ten degrees, and/or tag angles exceeding seventy degrees for straight tag applications, should include communication with a qualified engineer to ensure the structure and selected attachment point may safely support the resulting rigging forces;

Note: Comprehensive information relating to rigging plans, gin poles, site assessment is contained in the following consensus documents: ANSI/TIA 222-G 2016, ANSI/TIA 322 (Loading Analysis, and Design Criteria Related to the Installation, Alteration and Maintenance of Communications Structures, and in conjunction with ANSI/ASSE A10-48 2016 (Criteria for Safety Practices with the Construction, Demolition, Modification and Maintenance of Communications Structures).

WAC 296-32-24022 Gin poles—Installation.

When installing gin poles, the employer must ensure that the following requirements are met:

(1) All applicable requirements for design, construction, installation, modification, testing, inspection, maintenance, and operation of gin poles as prescribed by the manufacturer or a registered professional engineer are met.

(2) The gin pole must be attached to a structure in an arrangement with its upper portion cantilevering above the tower top.

(3) The employer must ensure that when the gin pole is designed, consideration must be given to the possibility of personnel climbing the pole to perform rigging functions and for tie off points to accommodate fall protection equipment.

(4) The rooster head which is located at the top of the gin pole must meet the following requirements:

(a) The side plates must have bolts or pins with spacers around the sheave so the load line is held in place and side plate distance is controlled.

(b) Sheave diameter and groove must be designed for the load line size and type being used.

(c) The distance between the sheave edge and the side plate must not exceed twenty-five percent of load line diameter unless a mechanical means is provided to contain the load line within the sheave groove.

(5) Tracks used to guide and support gin poles during the jumping process must not be used as a bridle or mid-level support unless specifically designed for such use.

(6) The load line is used to raise and lower the intended load. The load line must leave the hoist at ground level, go through a block at the base of the tower, then up through the middle of the pole, through the rooster head and back down to the ground to pick up the intended load.

(7) A gin pole chart must be provided for each pole. Gin pole charts must contain all of the following information as a minimum:

(a) Identification number or other reference.

(b) Gin pole description.

(c) Safe lifting capacities (gross load) based on cantilever projection (La), overall gin pole length (L), and type of tag.

> **Note**: (La) is the length of the pole that sticks up above and is not supported by the tower.

(d) Reaction forces at gin pole attachment points.

(e) A table to convert degrees to a field measurement.

(f) A warning that the load chart is for lifting loads and to reduce the safe lifting capacity by one half when lifting personnel.

(8) All lifts must be within the ratings allowed in the "load chart." Any lift or lifting to be allowed on a special basis, which is outside of the "load chart," must only be allowed at the direction of a registered professional engineer. Special monitoring and measuring conditions, as specified by the engineer, must be provided and used in the field during all "special engineered lifts."

(9) Markings for gin poles must be as follows:

(a) Each gin pole must be permanently marked with an identification number that references a specific load chart.

(b) For proper assembly, each section and leg of the gin pole must be marked in a specified sequence.

(10) The designer/engineer specified straightness tolerances must be used for inspection. Minimum inspection criteria for gin poles must be done by a qualified person as follows:

(a) A detailed documented inspection annually or within one year prior to being placed in service.

(b) A general visual inspection during assembly prior to use on a specific project.

(c) After any abnormal occurrence.

(11) Rigging equipment for the gin pole must comply with all of the following:

(a) Wire/synthetic rope, slings, chains, shackles, turnbuckles, links, hooks, sheaves, rotating rooster heads, blocks, and hoists, used in a gin pole lifting arrangement must meet the manufacturer's safe working load limits. In addition, each component other than chain slings, must have a nominal breaking strength of not less than five times the static load applied. Chain slings must have a nominal breaking strength of not less than four times the static load applied. Consideration for end fitting losses and actual positioning of connecting parts must be given.

(b) Lugs or other devices for lifting or attaching the gin pole in position must be designed with load and resistance factors appropriate for their intended use.

(c) Alloy chains and chain terminations must be rated for overhead lifting. Alloy chains must be identified with a manufacturer's mark indicating the grade of the chain.

(d) Only properly heat treated hooks and shackles shall be used. The manufacturer's load rating must be stamped on the product.

(e) The breaking strength of the sheave must equal or exceed the breaking strength of the wire rope intended for the sheave.

WAC 296-32-24024 Gin poles—Use.

(1) Gin pole use must comply with the following:

(a) A user's gin pole load chart must be provided for each pole.

(b) Any special engineered lift that is outside of the load chart must only be allowed at the direction of a registered professional engineer. Monitoring and measuring conditions, as specified by a registered professional engineer, must be provided and used during all special engineered lifts.

(c) Modifications or repairs to the gin pole must be designed and approved by a professional engineer or a qualified gin pole design professional and the repairs inspected by a qualified person prior to returning to service.

(d) A mechanism must be in place to prevent the gin pole from tipping during the jumping process.

(2) Wire rope used for rigging must be as follows:

(a) Compatible with the sheaves of the rooster head and hoisting blocks.

(b) Lubricated in accordance to manufacturer specifications to prevent corrosion and wear.

(c) End connections must be terminated per industry and manufacturer's specifications.

(d) Wedge sockets must have a minimum tail length of one rope lay with a properly torqued clip attached to prevent accidental disengagement.

(e) Only manufactured Flemish eyes will be acceptable.

WAC 296-32-24026 Gin poles—Inspections.

The employer must ensure that gin pole inspections include all of the following:

(1) Gin poles must have a documented inspection annually by a qualified person.

(2) In addition to the annual inspection, the employer must designate a competent person who must visually inspect the gin pole and rigging prior to each use, and during use, to ensure it is in safe operating condition. Any deficiencies must be repaired before use continues.

(3) During each inspection, a qualified person or a competent person must do all of the following:

(a) Inspect the legs and bracing members for bends or distortion.

(b) Inspect the straightness tolerances for the overall assembly (including leg and bracing members).

(c) Visually inspect the welds for quality, deformation, cracks, rust, pitting, or loss of cross sectional area.

(d) Inspect the members for excessive rust, pitting, or loss of cross sectional area.

(e) Inspect the sling attachment points for distortion, wear, cracks, and rust.

(f) Ensure that proper bolts are used and all associated hardware is in good condition.

(g) Inspect side plates on rooster heads for distortion or other damage.

(h) Inspect all attachment hardware, including rigging and parts such as cables, slings, and sling attachment points, shackles, hooks, and sockets for wear, distortion, cracks, and rust.

(i) Ensure that all problems identified during the inspection are corrected before placing the gin pole into service.

WAC 296-32-24028 Base mounted hoists used for overhead material lifting and personnel lifting.

(1) This section provides minimum design and use criteria for hoist mechanisms used for overhead material lifting and personnel lifting during the construction and/or maintenance of communication structures. All hoist mechanisms must meet applicable requirements for design, construction, installation, testing, inspection, maintenance and operations as prescribed by the manufacturer or the qualified person designing the system. At a minimum the hoist mechanism must comply with this standard.

(2) Design. The following identifies the minimum design parameters for those hoists used for overhead lifting and for lifting personnel.

(a) Design for overhead lifting.

(i) The hoist used for overhead lifting must meet the applicable requirements for design, construction, installation, testing, inspection, maintenance, modification, repair and operations as prescribed by the manufacturer.

(ii) Where manufacturers' specifications are not available, the limitations assigned to the equipment must be based on the determinations of a registered professional engineer.

(iii) The hoist mechanism may be designed to lift materials and also personnel with the same drum or drums.

(b) Design for personnel lifting.

(i) If the hoist has the ability to free spool, it must have a positive locking system to prevent free spooling during hoisting.

(ii) If the unit has the capability of exceeding two hundred feet per minute during operations, it must have a line speed indicator.

(iii) Hoists used for lifting personnel must have a visible tag on the unit indicating the unit complies with the standard.

(c) Structural design for overhead and personnel lifting.

(i) During hoist assembly, the frame of the winch assembly and attached components must be designed to resist at least two times the maximum attainable line pull.

(ii) Flatness of the mounting surface must be held to tolerances specified by the hoist manufacturer.

(iii) The alignment of winch assembly components will be maintained within limits that must prevent premature deterioration of gear teeth, bearings, splines, bushings and any other parts of the hoist mechanism.

(iv) All winch drums must have a positive means of attaching the wire rope to the drum. The hoist drum must be designed to raise and lower 125 percent of the rated load of the hoist.

(d) Brakes. Brakes for overhead lifting.

(i) Hoist brakes must be capable of controlling the descent of a load.

(ii) Hoist brakes must be capable of stopping the load and minimize inertia loading.

(iii) If the hoist mechanism has the ability to free spool, then it must have a means of controlling the load during the raising and lowering of loads.

(iv) Brakes must be provided to prevent the drum from rotating in the lowering direction and must be capable of holding the load indefinitely without attention from the operator.

(v) Units that have no continuous mechanical linkage between the brake actuator and the brake must have a means of holding the load when there is a loss of brake actuating power on the winch assemblies.

(vi) Static brakes must be provided to hold the drum from rotating in the lowering direction and must be capable of holding the load indefinitely without attention from the operator.

(vii) Brakes, which are applied on stopped hoist drums, must have sufficient impact capacity to hold 1.5 times the rated torque of the hoist.

(viii) Brakes must be provided with adjustments, where necessary, to compensate for wear and to maintain adequate force on springs where used.

(ix) Foot-operated pedals, where provided, must be constructed so the operator's feet will not readily slip off, and the force necessary to move the pedals must be easily accomplished.

(x) Foot-operated brakes must be equipped with a locking device to maintain the brake in a loaded position.

(e) Brakes for lifting personnel.

(i) Winch assemblies must be provided with a primary brake and at least one independent secondary brake, each capable of holding 125 percent of the lifting and lowering capacity of the hoist.

(ii) The primary and secondary brake must be directly connected to the drive train of the winch assembly and must not be connected through belts, chains, etc.

(iii) The primary and secondary brake, when actuated, must decelerate, stop and hold the load in a controlled manner.

(iv) When the primary brake fails, the secondary brake must actuate automatically and hold the load in a controlled manner.

(v) A means to set brakes automatically in the event the loss of brake actuating power must be provided on winch assemblies that have no continuous mechanical linkage between the brake actuator and the brake.

(vi) Brakes must be automatically applied upon return of the control lever to its center (neutral) position.

(f) Controls for overhead and personnel lifting.

(i) All controls used during the normal operation of the hoist mechanism must be located within easy reach of the operator while at the operator's station.

(ii) There must be means to start and stop the prime mover under emergency conditions from the operator's station.

(iii) All control levers must be clearly marked and easily visible from the operator's station.

(iv) All hoist control levers that are designed to do so, must spring return to neutral when released or have a comparable system that allows the braking mechanism to set automatically.

(g) Hour meter. In order to comply with the inspection criteria, there must be an hour meter used as a means of monitoring the operating time a hoist winch assembly operates.

(h) Machine guarding.

(i) Belts, pulleys, gears, shafts, sprockets, spindles, drums, fly wheels, chains or other rotating parts must be fully guarded to prevent employee contact.

(ii) All exhaust pipes must be guarded where exposed to employee contact.

(3) Inspection and maintenance. The following are the requirements for inspection and maintenance for all hoists:

(a) General guidelines.

(i) The hoist must have a documented daily inspection by a competent person before use.

(ii) Prior to initial use, all new, altered or modified hoist mechanisms must be inspected by a qualified person.

(iii) Inspection records must be available and accessible for a minimum of two years.

(iv) The teardown inspection records must be available until the next teardown inspection is completed.

(v) Any hoist that has been idle for a period of over six months must be given an annual inspection prior to use.

(vi) Any hoist that has an unknown history of repair or maintenance must have a tear down inspection prior to use.

(b) Inspection criteria. Before use, a competent person familiar with the applicable hoist must visually inspect the hoist to verify that the following conditions are met:

(i) A documented daily inspection must be performed which must include at a minimum:

(A) Engine oil level must be checked.

(B) Engine coolant levels must be checked.

(C) Check for external oil leaks.

(D) Hydraulic oil reservoir level must be checked.

(E) All safety devices and brakes must be checked for wear and tear to ensure they function properly.

(F) A visual inspection must be conducted for loose or missing structural connections.

(ii) A documented semi-annual inspection must include the daily inspection and the following:

(A) Winch oil level must be checked.

(B) All safety devices and brakes must be tested to ensure they are functioning properly.

(C) A visual inspection must be conducted for loose or missing structural connections.

(D) A complete oil analysis must be conducted.

(E) The winch assembly must be dynamically tested in both the hoisting and lowering directions while under a load of at least 30 percent of the hoist lifting capacity.

(F) The inspection must be documented in writing and maintained for two years.

(iii) A documented annual inspection must include the items in the daily and semi-annual along with the following:

(A) Lubricating oil and hydraulic fluids must be tested according to the manufacturer's specification for contaminants and replaced if necessary.

(B) The annual inspection must be documented and maintained for two years.

(c) Teardown criteria for overhead material lifting. A teardown inspection of the winch assembly must be completed under the supervision of a qualified person using the manufacturer's specifications and includes at a minimum the following:

(i) A teardown inspection must include the hoist being completely disassembled, cleaned and inspected, replacement of all worn, cracked, corroded or distorted parts such as pins, bearings, shafts, gears, brake rotors, brake plates, drum and/or base;

(ii) After a teardown inspection, a certificate must be issued that includes the following:

(A) The effective date of the repair.

(B) The asset and serial numbers of the unit.

(C) The name of the repair shop.

(D) The name of the qualified person.

(d) Teardown criteria for lifting personnel.

(i) Those winch assemblies that adhere to the required daily, monthly, semi-annually and yearly inspection criteria must conform to the following teardown inspection time frame:

(A) Severe duty every three years.

(B) Moderate duty every five years.

(C) Infrequent use every seven years.

(ii) Those winch assemblies that do not adhere to this documented inspection criteria, must have a teardown inspection every three years.

(iii) During any inspection, items found that may affect the performance of the unit must be repaired before use.

(iv) Documentation of the inspection must include, but not be limited to, winch model and serial number, name and employer of repair/inspection technician, date and description of findings, parts replaced and test results.

(4) Repair and modifications. The manufacturer's specifications and guidelines for repair and modification must be used; however, when these are not available, the following minimum requirements must be used:

(a) All repairs and modifications must be made under the supervision of a qualified person.

(b) Repaired hoists must be line pull tested to the maximum rated load and the winch assembly must be rotated several times in both hoisting and lowering directions under maximum rated load while checking for smooth operation.

(c) Prior to initial use, all new, altered or modified hoist mechanisms must be inspected by a competent person.

(d) Documentation of all modifications and repairs must be maintained and available for review for a minimum of two years.

(e) If modifications alter the line pull or performance of the unit, then a revised load chart must be developed and installed to reflect the change.

(5) Training. All hoist operators must be qualified in accordance to the complexities of the work and of the hoist they are operating. Hoist operators may attain qualification through a combination of classroom training; experience gained under the direct supervision of a qualified hoist operator, and demonstrated proficiency.

(a) During training or until the training requirements are met, the operator must not operate the hoist during personnel hoisting operations.

(b) An operator must be trained in accordance to the class of machine they will be operating:

(i) Class A – 1,000 lbs. or less.

(ii) Class B – 1,000 lbs. to 5,000 lbs.

(iii) Class C – Greater than 5,000 lbs.

(c) The operator at a minimum must have the following training:

(i) Ensure the hoist operator has classroom training in hoist operations; a minimum of forty hours as a hoist operator under the direct supervision of a qualified hoist operator, not less than eight hours in the operation of the class of hoist or one of the same type, and has demonstrated the ability to safely operate the hoist.

(ii) The operator must have documented practical training on the safe operation of the applicable hoist by using the following:

(A) Operator's manual provided by the manufacturer;

(B) Company policy;

(C) Be familiar with hand signals being used;

(D) Be familiar with the operations of two-way radios if they are being used;

(E) Be familiar with the work being completed.

(iii) The operator must have a designated signal person and must take a stop signal from anyone.

(6) Operator requirements and responsibilities. Operator and operator trainees must meet the following physical qualifications unless it can be shown that failure to meet the qualifications will not affect the operation of the hoist. In such cases, specialized clinical or medical judgments and tests may be required.

(a) Vision of at least 20/30 Snellen in one eye and 20/50 in the other, with or without corrective lenses.

(b) Ability to distinguish colors, regardless of position, if color differentiation is required.

(c) Adequate hearing to meet operational demands, with or without hearing aid.

(d) Sufficient strength, endurance, agility, coordination, and speed of reaction to meet the operation demands.

(e) No tendencies to dizziness, seizures or similar characteristics.

(f) No evidence of having physical or emotional instability that could render a hazard to the operator or others.

(g) The operator must have adequate eyesight for the operation.

(h) The operator must not engage in any practice which will divert their attention while operating.

(i) The operator must be responsible for those operations under their direct control.

(j) Whenever there is any doubt as to safety, the operator shall have the authority to stop and refuse to handle the load until the situation is remedied.

(k) The operator must not leave their position at the controls while a load is suspended.

(l) Before starting the hoist mechanism the operator must ensure that:

(i) The daily inspection has been done;

(ii) All controls are in the off position; and

(iii) All personnel are in the clear.

(7) Designated operators. The hoist mechanism can be operated by:

(a) Designated operators;

(b) Trainees under the direct super vision of a designated operator;

(c) Qualified maintenance and test personnel during repairs or testing; or

(d) Inspectors.

(8) Operations. During operations, the hoist operator must comply with the following:

(a) The drum flange will be a minimum of two times the wire rope diameter higher than the top layer of the wire rope.

(b) The hoist drum must have a diameter or enough layers on the drum to maintain a minimum of an 18:1 pitch diameter ratio or the proper reduction based on the applicable D:d ratios.

(c) No less than three wraps of wire rope shall be maintained on the drum at all times.

(d) The hoist must be positioned so that it is level and the distance between the drum and the foot block at the base of the tower will allow proper spooling of wire rope.

(e) The foot block must be anchored to prevent displacement and be supported to maintain proper alignment.

(f) An accessible fire extinguisher of 5BC rating or higher must be at the operator's station.

(9) Operator's manual. There must be an operator's manual on-site and readily available for the applicable unit which was developed by the manufacturer, or registered professional engineer, for the specific make and model of hoist being used.

(10) Load chart. The following postings must be at the control station readily visible or available to the operator.

(a) Where the rated capacities are inaccessible the operator must immediately cease operations or follow safe shutdown procedures until the rated capacities are available.

(b) Rated load capacities, recommended operating speeds and special hazard warnings, or instructions must be conspicuously posted on all hoists.

(c) If a gin pole, derrick, pedestal crane or similar special lifting device is used with a base mounted hoist or winch to make lifts on a structure, the operator must have a load chart on-site for the lifting mechanism and its use must be included in the rigging plan for the job.

(11) Hoist anchorage.

(a) The hoist anchorage, at a minimum, must have a working load limit (calculated with a minimum 2.0 safety factor) equal to or greater than the maximum anticipated hoist load. Alternately, a load test of 1.5 times the maximum anticipated hoist load under the expected site conditions during the lift may be used to verify the adequacy of the hoist anchorage.

(b) Twisting, turning and sliding resistance must be investigated.

(c) When calculating allowable sliding resistance, the assumed coefficient of friction must not exceed 0.20 and incorporate a minimum 2.0 safety factor unless the coefficient of friction is determined by a registered professional engineer.

(d) The weight of the hoist must be considered with the minimum load line remaining on the drum for the lift.

(e) When personnel are lifted, the maximum anticipated hoist load must not exceed 50 percent of the hoist anchorage capacity.

(12) Communications.

(a) Loads being hoisted must remain in continuous sight of and/or in direct communication with the operator or signal person.

(b) When hand signals are used, the employees must use standard hand signals.

(c) In those situations, where direct visual contact with the operator is not possible and the use of a signal person would create a greater hazard, direct communication alone, such as by radio, must be used.

(d) When radios are used, they must be nontrunked closed 2-way selective frequency radio systems and the device(s) must be tested on-site before beginning operations to ensure that the signal transmission is; effective, clear, reliable and the operator must utilize a hands free system for receiving such signals.

(13) Weather conditions. Loads must not be hoisted during adverse weather conditions (high winds, electrical storms, snow, ice or sleet) or when there is other impending danger, except in the case of emergency or employee rescue.

(14) Rigging plans. All hoist operations must be part of a rigging plan as applicable in this chapter. The hoist operator must have knowledge and understanding of the rigging plan and a copy readily available.

WAC 296-32-24032 Personnel lifting—General requirements.

(1) Personnel platforms and/or their suspension systems must be designed, constructed and tested according to ASME B30.23-2005, Personnel Lifting Systems. The design and manufacturer's specifications must be made by a registered professional engineer.

> **Note**: Additional requirements relating to personnel lifting are located in chapter 296-155 WAC, Part L.

(2) Before an employee may perform any job related to hoisting employees aloft for work, the employee must receive training on all facets of the process. The operator of the hoist must have a thorough understanding and comply with subsections (2) through (9) of this section pertaining to hoisting employees on the hoist line.

(3) Overhaul ball. This subsection sets forth the minimum requirements for the design and use of an overhaul ball as part of the lifting system.

(a) The weight of the ball must overhaul the weight of the load line based on its own weight.

(b) If the ball is an integral part of the system and the load goes through the ball, then it must be designed accordingly.

(c) The ball must be designed with attachment points at the top and bottom.

(d) A maximum of two employees may be attached to the ball at one time.

(4) An anti-two block device must be used on all hoists, except where an employer can demonstrate that ambient radiation frequency (RFR) precludes that use. In such case, a site-specific rigging plan must be established and maintained on-site to ensure that two blocking cannot occur and that effective communication between the hoist operator and personnel being hoisted is maintained. This plan may include a cable marking system, an employee situated on the tower in a position to observe the top block, or any other system that will adequately ensure communication. All of the following must apply:

(a) A qualified person must make the following determinations:

(i) The rigging, hoist line, and slings must have a factor of safety of 10:1 against failure during personnel lifts;

(ii) The hoist line used to raise or lower employees must be wire rope and may be equipped with a swivel to prevent any rotation of the employees;

(iii) If a swivel is not used, then an alternate means must be used to keep the employees under control at all times;

(iv) If spin resistant wire rope is used, additional and more frequent inspections are required due to different wear trends.

(b) When hoisting personnel (versus material), the hoist capacity load rating must be derated by a factor of two (reduced by one half) and must maintain a 10:1 factor of safety after the reduction is considered. All employees must be provided with and required to use the proper personal protective equipment (including fall protection equipment) that must be inspected each day before use.

(c) Except where the employer can demonstrate that specific circumstances or conditions preclude its use, a guide line (tag line) must be used to prevent the employees or the platform from contacting the tower during hoisting.

(d) The gin pole must be thoroughly inspected before use by a competent person to determine that it is free from defects including, but not limited to, damaged and/or missing members, corrosive damage, missing fasteners and cracked or broken welds at joints, and general deterioration.

(e) The gin pole must be attached to the tower as designed by a registered professional engineer. There must be a minimum of two attachment locations, one at the bottom of the gin pole and one near the top of the tower or the highest position available on the structure.

(f) The personnel load capacity and material capacity of the lifting system in use must be posted at the site near the location of the hoist operator. If the system is changed (for example, if the gin pole angle is changed), the posted capacity must be changed accordingly.

(g) In situations where a gin pole is not being used on a communication tower and similar structures, a crown block may be used on the structure instead of a gin pole for access to the work location.

(5) A trial lift of the maximum intended personnel load must be made from ground level to the location to which personnel are to be hoisted.

(a) The trial lift must be made immediately prior to placing personnel on the hoist line.

(b) The hoist operator must determine that all systems, controls, and safety devices are activated and functioning properly.

(c) A single trial lift may be performed for all locations that are to be reached from a single set-up position.

(d) The hoist operator must determine that no interference exists and that all configurations necessary to reach those work locations remain under the limit of the hoist's rated capacity and additionally maintain a 10:1 factor of safety against failure.

(e) The trial lift must be repeated prior to hoisting employees whenever the hoist is moved and set up in a new location or returned to a previously used position.

(f) After the trial lift, employees must not be lifted unless the following conditions are met:

(i) Hoist wire ropes are determined to be free of damage in accordance with WAC 296-32-22555 and 296-155-53404.

(ii) Multiple part lines are not twisted around each other.

(iii) The proof testing requirements have been satisfied.

(g) If the hoist wire rope is slack, the hoisting system must be inspected to ensure that all wire ropes are properly seated on drums and in sheaves.

(h) A visual inspection of the hoist, rigging, base support, and foundation must be made by a competent person immediately after the trial lift to determine whether testing has exposed any defect or adverse effect upon any component of the structure.

(i) Any defects found during the inspection that may create a safety hazard must be corrected and another trial lift must be performed before hoisting personnel.

(ii) Prior to hoisting employees and after any repair or modification, the system must be proof tested to its rated load, holding it in a suspended position for 5 minutes with the test load evenly distributed (this may be done concurrently with the trial lift).

(iii) After proof testing, a competent person must inspect the rigging. Any deficiencies found must be corrected and another proof test must be conducted.

(6) A prelift meeting must be held before the trial lift at each location and each time a new employee is assigned to the operation. The prelift meeting must meet both of the following requirements:

(a) The hoist operator, each employee to be lifted, and the crew chief must attend.

(b) The hoist operator must review the procedures to be followed and all appropriate requirements contained in this rule with the other individuals present.

(7) The employer must ensure that all trial lifts, inspections, and proof tests must be performed and documented, and the documentation must remain on-site during the entire length of the project. The employer must ensure that the prelift meeting is documented, and the documentation must remain on-site during the entire length of the project.

(8) Employees must be hoisted to their work stations by using a personnel platform or by using a boatswain chair and/or boatswain seat-type full body type harness.

(a) When a boatswain chair or boatswain seat-type full body harness is used to hoist employees, the following must apply:

(i) Not more than two employees may be hoisted at a time.

(ii) When hoisting an employee in a boatswain type full body harness, the harness must be attached to the hoist wire rope line in such a manner as to utilize the boatswain seat part of the harness, placing the employee into a sitting position and a fall arrest lanyard must be attached from the back D ring of the full body harness to a separate attachment point.

(iii) Only locking-type snap hooks shall be used.

(iv) The harness must be equipped with two side rings and at least one front and one back D ring.

(v) The hoist line hook must be equipped with a safety latch that can be locked in a closed position to prevent loss of contact.

(vi) Employees must maintain 100 percent tie-off while moving between the hoist line and the tower.

(b) When a personnel platform is used, the following provisions must be followed:

(i) The maximum rate of travel must not exceed two hundred feet per minute when a tag or trolley line is used to control personnel hoists. When a tag or trolley line cannot be used, the rate of travel of the employee being hoisted must not exceed one hundred feet per minute.

(ii) In all personnel hoist situations, the maximum rate must not exceed 50 feet per minute when personnel being lifted approaches to within fifty feet of the top block.

(iii) The use of free-spooling (friction lowering) is prohibited. When the hoist line is being used to raise or lower employees, there must be no other load attached to any hoist line and no other load must be raised or lowered at the same time on the same hoist.

(iv) As-built drawings approved by a registered professional engineer must provide the lifting capacity of the gin pole and must be available at the job site.

(v) The gin pole raising line must not be used to raise or lower employees unless it is rated for lifting employees.

(vi) Employees must maintain 100 percent tie-off while moving between the personnel platform and the tower.

(9) Employees being hoisted must remain in continuous sight of and/or in direct communication with the operator or signal person. The following must apply:

(a) In those situations, where direct visual contact with the operator is not possible and the use of a signal person would create a greater hazard for the person being hoisted, direct communication alone, such as by radio, must be used.

(b) When radios are used, they must be nontrunked closed 2-way selective frequency radio systems. When hand signals are used, the employees must use industry standardized hand signals.

(10) Employees must not be hoisted during adverse weather conditions (high winds, heat, cold, lightning, rain, snow or sleet) or other impending danger, except in the case of emergency employee rescue. The competent person must make the determination.

(11) The hoist system (gin pole and its base hoists) used to raise and lower employees on the hoist line, must not be used unless the following clearance distances in Table 8 are maintained at all times during the lift:

Table 8

Power line voltage Phase-to-Phase (kV)	Minimum safe clearance (feet)
50 or below	10
Above 50 to 200	15
Above 200 to 350	20
Above 350 to 500	25
Above 500 to 750	35
Above 750 to 1,000	45

Note: Additional requirements relating to rigging are located in chapter 296-155, Parts F-1 and L.

WAC 296-32-24034 Helicopters used for lifting loads.

This section sets forth the minimum requirements for individuals working with helicopters used as a method for the installation, replacement, and/or removal of antennas and antenna supporting structures.

(1) Helicopters and helicopter cranes used for external load lifting during construction, maintenance and demolition activities must comply with any and all applicable regulations of the Federal Aviation Administration (FAA) Part 133 for helicopter external sling load operations.

(2) Operator/pilot responsibilities. The helicopter operator/pilot must be responsible for their machine and the operations of their equipment.

(3) FAA flight plan. All helicopter external load lifting must be reviewed by the FAA to determine if an FAA Congested Area Flight Plan must be applied for. If a plan is required, it must be filed and approved by the FAA prior to the day of the lift.

(4) Loose gear, equipment and objects. Every practical precaution must be taken to provide for the protection of the employees from flying objects in the rotor downwash. All loose gear, equipment and materials within one hundred feet of the load lifting area and setting the load, and all other areas susceptible to rotor downwash must be secured or removed.

(5) Operational parameters.

(a) The aircraft owner/operator/pilot(s) must be responsible for the helicopter load lifting operations. The weight of an external load must not exceed the manufacturer's rating for the specific aircraft being used. The helicopter operator/pilot must be responsible for size, weight and manner in which loads are connected to the helicopter. If, for any reason, the helicopter operator/pilot believes the lift cannot be made safely, the lift must not be made.

(b) The helicopter operator/pilot must be familiar with the following:

(i) Load capacities at altitudes and air densities;

(ii) Hover capacities and limits;

(iii) Emergency operation and release of electricity operated cargo hooks;

(iv) Emergency jettison of external sling load;

(v) Static discharge of external sling load; and

(vi) Rotor downwash hazards during external sling load operations.

(6) Prejob planning. The use of a helicopter for lifting loads requires careful planning. The work must be organized around the aircraft and the factors that govern its operation such as load limitations, surrounding terrain and structures, and weather conditions. This requires the participation and cooperation of everyone involved. Planning includes, but is not limited to:

(a) Locate and plan the staging area;

(b) Provide for fire watch and spills;

(c) Prepare flight plans;

(d) Divide the job into lifting zones;

(e) Plan the load lifting sequence;

(f) Do alternate day planning.

(7) Helicopter on board hoists. Helicopters or helicopter cranes equipped with on board hoists or winches must not be allowed to be attached or connected to any fixed structure on the ground at any time.

(8) Signaling systems. Signal systems between aircrew and ground personnel must be understood and checked in advance of hoisting the load. This applies to either radio or hand signal systems.

(9) Helicopter refueling. Due to the load lifting abilities and capacities of individual models of aircraft flight with low fuel levels is common. It may become necessary to refuel the helicopter at the designated staging/lift area. Care must be given to ensure the aircraft is grounded per the manufacturer's recommendation during all refueling activities.

(10) Daily preflight briefing. Prior to each day's operation a job hazard assessment must be conducted. This assessment must set forth the plan of operation for all individuals involved in the helicopter external sling load lift. The preflight briefing must include, but not be limited to, the following:

(a) Weather forecast and visibility for the day of the lift(s);

(b) Confirmation of flight path;

(c) Load lifting sequence;

(d) Individual load weights;

(e) Wind speed and direction monitoring;

(f) Ground crew responsibilities;

(g) Load receiving crew's responsibilities;

(h) Pilot's responsibilities;

(i) Communications/signaling;

(j) Aircraft fuel loading and refueling;

(k) Emergency plan for load jettison and landing.

(11) Lifting plan.

(a) The lifting plan must at a minimum cover:

(i) Load identification;

(ii) Lifting sequence; and

(iii) Load orientation marks or tags.

(b) Loads that do not require upending must be oriented in the same direction in the staging area as the laydown area. You must:

(i) Plan the layout of the staging area to avoid any light or unstable material that may blow around; and

(ii) Plan the lifting and flight path to avoid flying over employees and any material still being installed or not yet secure in the laydown area.

(12) Job hazard analysis/risk assessment. During the job hazard assessment, at a minimum, identify, assess, and eliminate or provide protection against risks posed by:

(a) Power lines;

(b) Cranes in the area;

(c) Structures, roof and structure profiles;

(d) Loose, unsecured material in staging or roof landing area;

(e) Temporary, unsecured structures in staging or landing area;

(f) Roof openings and roof access - Cover both to prevent building pressurization and to eliminate fall hazards;

(g) Unprotected roof edges;

(h) Pinch, crush, and similar danger points in the load/lift/land sequence;

(i) Weather conditions;

(j) Public safety.

(13) Rigging slings and inspection.

(a) Rigging slings for suspended external loads must consist of steel IWRC type slings at all direct connection points to the load being lifted.

(b) Synthetic slings may only be used in the intermediate length of the rigging between the direct steel sling and the cargo hook connection.

(c) The connection between the slings and the helicopter cargo hook must be a single steel rigging ring of either round or oval shape and must be of compatible shape and size to ensure immediate connection and release when the connection between the cargo hook and the ring is terminated by deliberate action of the pilot.

(d) All rigging components and assemblies must have documented inspections each day before use.

(14) Tag lines.

(a) Tag lines must be used on all external sling loads.

(b) All tag lines must be equipped at the end with a weight of sufficient size to ensure that the line will not be induced into the main rotor or tail rotor under any operating condition.

(c) Hand spliced synthetic rope connections are not allowed in any helicopter external load operation.

(d) Tag line length must be kept shorter than the load line length to ensure the lines cannot be blown into the main rotors.

(15) Remotely operated cargo hooks.

(a) All cargo hooks must have the electrical activating device so designed and installed as to prevent inadvertent operation.

(b) In addition, these cargo hooks must be equipped with an emergency mechanical control for releasing the load.

(c) The hooks must be tested prior to each day's operation to determine that the release functions properly, both electrically and mechanically.

(16) Personal protective equipment (PPE).

(a) Personal protective equipment for employees receiving the load must consist of approved eye protection and head protection.

(b) Head protection must have chin straps to prevent inadvertent loss of head protection during operations.

(c) Loose-fitting clothing likely to flap in the downwash, and thus be snagged on hoist line, must not be worn.

(17) Housekeeping. Good housekeeping must be maintained in all helicopter loading and unloading areas.

(18) Hooking and unhooking loads.

(a) When employees are required to perform work under a hovering helicopter, a safe means of access and egress must be provided for employees to reach the hoist line hook and engage or disengage cargo slings.

(b) Employees must not perform work under hovering craft except when necessary to hook, unhook or secure loads.

Note: Load shape, orientation, and packaging. Load shapes can affect in-flight handling. Loads can be marked with their required orientation by using north or other marks to match mark to laydown locations. Remove loose sheeting, tarps, or other wrappings. Loose material can blow around, injure employees, and damage the aircraft if drawn into engine intakes or rotor blades.

(19) Static charge/discharge. The suspended load must be dissipated with an insulated grounding device before any construction personnel touch the suspended load, or protective rubber gloves must be worn by all ground personnel touching the suspended load.

Notes:

1. A static charge can develop on any suspended external sling load. The amount of static electricity that may be present prior to discharging is directly related to the temperature, humidity, altitude and time the load is suspended and/or flown during the external sling load operation.
2. The load may be equipped with a weighted grounding conductor slung below the load to discharge the static current if the pilot approves this method of discharge.

(20) Approach distance. No unauthorized person shall be allowed to approach within one hundred feet of the helicopter when the rotor blades are turning.

(21) Approaching a running helicopter.

(a) When approaching or exiting a helicopter with blades rotating, all employees must remain in full position with arms and hands kept low,

(b) Employees must avoid the area from the cockpit or cabin rearward unless authorized by the helicopter operator to work there.

(c) Personnel must not approach the area of the tail rotor at any time.

(22) Communications.

(a) There must be constant reliable communication between the pilot, competent rigger and a designated employee of the ground crew who acts as a signalman during the period of loading and unloading.

(b) The signalman must be distinctly recognizable from other ground personnel.

(23) Personnel training. The personnel performing the work must be trained in advance of any helicopter external sling load operation in all facets of the operation. This training can be accomplished in the prelift briefing. Employees must be made aware of the following:

(a) Static and discharge procedures;

(b) Wind/downwash characteristics;

(c) Noise

(d) Fall protection to release hook;

(e) Tagline parameters;

(f) Flying objects due to wind;

(g) PPE requirements;

(h) Rigging connections;

(i) Communication/signaling;

(j) Emergency planning.

Part A

WAC 296-32-195 Foreword.
[Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-195, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-200 Scope and application.
Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-200, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-200, filed 10/02/2017, effective 01/01/2018. Statutory Authority: RCW 49.17.010, .040, .050, and .060. 07-03-163 (Order 06-30), § 296-32-200, filed 01/24/07, effective 04/01/07. Statutory Authority: RCW 49.17.010, .040, and .050. 01-11-038 (Order 99-36), § 296-32-200, filed 05/09/01, effective 09/01/01. Order 76-38, § 296-32-200, filed 12/30/76; Order 75-41, § 296-32-200, filed 12/19/75.]

WAC 296-32-210 Definitions.
Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-210, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-210, filed 10/02/2017, effective 01/01/2018. Statutory Authority: Chapter 49.17 RCW. 94-15-096 (Order 94-07), § 296-32-210, filed 7/20/94, effective 9/20/94; Order 76-38,§ 296-32-210, filed 12/30/76; Order 75-41, § 296-32-210, filed 12/19/75.]

WAC 296-32-22505 Incorporation of standards of national organizations.
[Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22505, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22510 Safe place standard.
[Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22510, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22511 Host employer/contractor responsibilities.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-211, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22511, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22512 Accident prevention and safety meeting(s).
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22512, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22512, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22515 First aid.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22515, filed 11/19/2024, effective 01/01/2025. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22515, filed 11/19/2024, effective 01/01/2025]

WAC 296-32-22520 Remote communication sites.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22520, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22520, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22525 Training.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22525, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22525, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22530 Employee protection in public work areas.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22530, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22530, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22535 Facilities requirements.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22535, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22535, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22540 Tools and personal protective equipment-General.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22540, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22540, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22545 Capstan and cathead hoists.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22545, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22545, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22550 Rubber insulating equipment.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22550, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22550, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22555 General fall protection.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22555, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22555, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22560 Ladders.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22560, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22560, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22565 Vehicle-mounted material handling devices and other mechanical equipment.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22565, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22565, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22570 Communication, roof tops, water towers and other elevated locations
[Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22570, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22572 Microwave transmission/radio frequency radiation (RFR) and laser communication—General requirements.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22572, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22572, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22574 Hazardous areas.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22574, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22574, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22576 Optical communications systems (laser).
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22576, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22576, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-22578 Control of hazardous energy.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-22578, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-22578, filed 10/02/2017, effective 01/01/2018.]

Part B

WAC 296-32-23505 Pole climbing equipment.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-23505, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-23505, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-23510 Material handling and storage.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-23510, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-23510, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-23512 Cable fault locating and testing.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-23512, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-23512, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-23514 Grounding for employee protection—Pole lines.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-23514, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-23514, filed 10/02/2017, effective 01/01/2018.]

Part C

WAC 296-32-24010 Antenna work-radio transmission stations 3-30 MHZ.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24010, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24010, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-24012 Fall protection.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24012, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24012, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-24014 Work during hours of darkness.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24014, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24014, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-24018 Emergency response/rescue requirements.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24018, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24018, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-24020 Rigging plan.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24020, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24020, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-24022 Gin poles-Installation.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24022, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24022, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-24024 Gin poles-Use.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24024, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24024, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-24026 Gin poles-Inspection.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24026, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24026, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-24028 Base-mounted hoists used for overhead material lifting and personnel lifting.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24028, filed 10/06/2020, effective 11/06/2020.Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24028, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-24032 Personnel lifting—General requirements.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24032, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24032, filed 10/02/2017, effective 01/01/2018.]

WAC 296-32-24034 Helicopters used for lifting loads.
[Statutory Authority: RCW 49.17.010, 49.17-040, 49.17.050. and 49.17.060. 20-20-109 (Order 20-17), § 296-32-24034, filed 10/06/2020, effective 11/06/2020. Statutory Authority: 49.17.RCW. RCW 49.17.010, .040, .050, and .060. 17-20-069 (Order 13-12), § 296-32-24034, filed 10/02/2017, effective 01/01/2018.]