

CHAPTER 2

CLASSIFICATIONS AND RESPONSIBILITIES OF ELECTRICAL WORKERS

2-1. Workers' classifications

Workers' classifications are based on the training, experience, and the quality of services they provided. No workers are allowed to do any work of a higher rated classification than that for which they have qualified. However, workers can do work in a lower classification when, in the opinion of the supervisor or foreman, such assignment is practical and economical.

a. Laborer. A laborer works only on the ground. Such work as clearing rights-of-way, digging pole holes, aligning poles, and similar duties. A laborer cannot work as attendant of a wire reel, handle in any manner conductors being pulled in near other energized conductors, or guide the butt of a pole being set in an energized line. No experience and training are required for a laborer.

b. Groundman. This classification requires a period of employment of at least 12 months.

(1) *First 6 months of employment.* During the first 6 months of employment, the groundman can work only on the ground under the direction of the foreman in charge. The groundman must become acquainted with the tools required by linemen as well as all materials necessary in line construction. The methods of making up the various assemblies, such as down guys, dead ends, and single and double crossarms must be learned. A groundman should observe closely the working methods of linemen on poles and structures, and assist them from the ground as they direct with the exception that he/she must not act as attendant of a wire reel, handle in any manner conductors being pulled in near other energized conductors, or guide the butt of a pole being set in an energized line. A groundman should diligently study this manual and the methods of handling the various jobs. At the close of the first 6-month period, after passing an examination on the contents of this manual, and at the direction of the foreman, the worker may be taught to climb.

(2) *Second 6 months of employment or longer.* After 6 months the groundman is allowed to work on de-energized equipment while learning to climb. However, no groundman is authorized to do any work that requires climbing. The groundman must learn

the proper work methods from the foreman and follow exactly all instructions given by the foreman. This manual and other references listed in appendix A must be studied and applied diligently during this period.

(3) *After a full a full year of employment or longer.* After a full year of employment or longer, a groundman can become a candidate for promotion to lineman-C. However, the worker must take a higher level examination on the safety and methods of work pertaining to the facilities involved. If the candidate passes the examination, he/she could be advanced for promotion to lineman-C.

c. Lineman-C (or Junior Apprentice Lineman, MOS 52EU4 or MOS 52G). This classification requires a period of employment of at least 12 months.

(1) *First 6 months.* During the first 6 months a lineman-C is not allowed to do any work that requires climbing or working on energized conductors or equipment of more than 600 volts root mean square (RMS).

(2) *Second 6 months or longer.* A lineman-C having 12 months climbing experience (6 months as a groundman and 6 months as a lineman-C) may be allowed to do the following work:

(a) A lineman-C is allowed to work above energized circuits or on energized circuits on straight pole lines not exceeding 5,000 volts between conductors. However, before doing this work, the lineman-C must be judged capable of doing the job safely and must be assisted by a higher class lineman on the same pole. The more experienced lineman must supervise the handling of energized conductors. During the apprenticeship period, the lineman-C must learn all of the different circuits, the voltage each carries, and their relative positions on the poles and crossarms.

(b) A qualified lineman-C, with supervisor approval, may gain additional knowledge of live-line tools work by assisting in installing live-line tools and raising and lowering conductors in place, if accompanied on the same pole by a lineman-A. The lineman-C may be allowed to replace transformer fuses and tap-line fuses of any voltage using a hot line stick or fuse puller. Handling energized jumpers or untying and ty-

ing in conductors is not permitted. This work must be done by a lineman-A. The lineman-C will not be advanced to new or more hazardous duties until the foreman is satisfied with the worker's overall progress and ability to handle such duties.

(3) *After a full year of employment or more.* After a full year of employment or more, and after a thorough examination on this safety manual and the methods of work pertaining to the facilities involved, a lineman-C is qualified for-promotion to lineman-B if suitable progress has been made.

d. *Lineman-B (or Senior Apprentice Lineman).* This classification covers a period of at least 12 months employment.

(1) A lineman-B should be able to do all work that is required of a lineman-C. A lineman-B worker may work above energized distribution circuits regardless of voltage. A lineman-B may be permitted to transfer corner poles (ordinary type) when assisted by a foreman or lineman-A. However, this should not be taken as approval to work on any or all corner poles carrying lines not exceeding 5,000 volts between conductors. Ordinary corner poles are usually free of the major hazards that exist on the heavier loaded and more congested poles which are the responsibility of the lineman-A. During this service period a lineman-B should be permitted to assist in the use of live-line maintenance tools when the other worker on the job is a lineman-A. Only one lineman-B may actually handle energized conductors on one pole during this service period.

(2) After serving at least one full year and after a thorough examination on this safety manual and the methods of work pertaining to the facilities involved, a lineman-B is qualified for promotion to lineman-A if suitable progress has been made.

e. *Lineman-A (or Journeyman).* Only the most skillful and experienced linemen are to be classed in the grade of lineman-A. A lineman-A must have not less than ~e years experience before being advanced to this classification. A lineman-A is expected to be able to perform all duties of an electrical supervisor or a foreman. The advanced position of lineman-A carries with it the responsibility of helping to train the less experienced workers who are assigned to work on the job. The lineman-A should be capable of supervising the work of any part of the crew or even the entire crew when delegated to do so.

f. *Foreman.* A foreman is the head of a lineman's crew. A foreman must have not less than 3 years of

experience on work pertaining to the facilities involved and 1 year experience in coaching. The foreman should be able to direct, control, and assign suitable workers to each electrical job. He/she should also be able to issue detailed instructions for each job. He/she should enforce his/her employees to apply the safety rules seriously.

g. *Troubleman.* No one rated lower than a lineman-B is permitted to work as a troubleman. The limitations of the work for a troubleman are the same as those outlined in subparagraphs d and e above, depending upon the troubleman equivalent rating as a lineman (lineman-B or lineman-A).

h. *Patrolman.* No one rated lower than a lineman-B can be assigned to work as a patrolman. The limitations of work for a patrolman are the same as those outlined in subparagraphs d and e above, depending upon the patrolman's equivalent rating as a lineman (lineman-B or lineman-A). A patrolman is tasked with patrolling and inspection of lines and electrical components such as power transformers, capacitors, and circuit breakers to determine whether, how much, and when maintenance is required. A patrolman must be particularly careful with lighted cigarettes, cigars, matches, and pipe ashes which may cause fires during tasking. A patrolman should also be extremely cautious to avoid injury from fences, briars, swollen streams, and animals. A patrolman should be provided with a pair of boots and a standard snake-bite kit.

i. *Inside wireman.* An inside wireman requires 2 years of study to master the complexities of the National Electric Code (NEC) and of control circuitry. Special training courses by outside educational agencies may be necessary to ensure that qualifications for servicing complex equipment have been met by an inside wireman. An inside wireman dealing with medium voltage circuits must have qualified as a lineman-A. For low voltage circuits, an inside wireman must have qualified as a lineman-C.

2-2. Responsibilities of workers

Responsibilities are the duties that an employee must be accountable for within his/her power and control.

a. *Supervisors.* Supervisors are persons who are in charge overall of electrical maintenance and operation. Supervisor's responsibilities include—

(1) Selecting suitable workers for the job required.

(2) Selecting a competent worker as the leader of each crew.

(3) Being responsible for the safety of his/her workers.

(4) Providing orientation to new workers. Orientation would include work schedules, safety work procedures, personal safety, safety of co-workers, safety in work places, safety in public environment, first aid, emergency and local hospitals, accident reports, and safety reports.

(5) Developing a job description and training program for each new worker.

(6) Issuing a copy of this safety manual to each new worker. Each new worker will be required to take an examination on this safety-manual. Any worker failing to make a passing grade will be restricted in his/her works.

(7) Interpreting the safety rules to his/her workers when asked.

(8) Testing the workers on safety issues.

(9) Issuing work orders and instructions to the foreman who in turn will issue orders and instructions to his/her employees.

(10) Conducting safety meetings to explain, review and upgrade safe working conditions, procedures, and discuss lessons learned.

(11) Asking the workers to stop work immediately if unsafe working conditions are found or when the workers are inadequate for the job due to sickness or lack of training.

(12) Reviewing all unsafe working reports and accident reports, analyzing the situations, and solving the problems as soon as possible.

(13) Coordinating with the supplied utilities and other agencies for the shut-down of the power systems for routine maintenance or repairs.

b. Foremen. Foremen will be in charge of the safety and performance of the workers directly under their supervision. Foremen's responsibilities include:

(1) Coordinating with his/her supervisor and other crew's leaders.

(2) Reporting immediately to his/her supervisor all unsafe situations, working conditions, procedures, equipment, tools, and machinery.

(3) Being directly in charge of his/her crew.

That would include—assigning work to his/her workers, providing safety equipment and detailed instructions pertaining to each job, safety planning, direct coaching, and quality controlling.

(4) Being responsible for the safety of his/her crew. Asking his/her crew to stop work immediately and leave the area when a dangerous situation is found.

(5) Discharging immediately any worker who is suspected to be under the influence of drugs, alcohol, or mental illness.

(6) Providing new workers proper training. That would include: proper working methods, good shop/housekeeping, safe working practices, first-aid treatment, resuscitation, emergency calls, safety reports, accident reports, and inspecting/using/testing/maintaining personal protective devices, tools, and equipment.

(7) Assigning qualified worker in the crew to coach new workers.

(8) Ensuring that the workers in his/her crew are physically able to do the work assigned. Any worker who appears to be sick or unfit for work will be relieved from all duties and not allowed to return to work until fully recovered.

(9) Conducting meetings to interpret the safety rules and working procedures in detail to his/her workers.

(10) Remaining at the Job site for direct coaching and controlling as long as his/her crew is performing a job on energized lines' equipment, or apparatus.

(11) Preventing unauthorized persons from approaching places where work is being done by the placing of barricades, hole covers, warning signs, flags, red lanterns, and other means of protecting the public.

(12) Taking necessary steps to correct the defective lines, equipment or apparatus.

(13) Avoiding engaging in the actual work except where the crew is small or, in emergencies, when it becomes necessary to take an active part in the work.

c. Crew members. Crew members include all electrical and non-electrical workers. They have the responsibility to learn and apply all the safety rules

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listed in this manual. Other responsibilities of crew members are as follows:

(1) Observing carefully all instructions given by their appropriate supervisors or foremen for each job.

(2) Understanding clearly what needs to be done and how to accomplish the job.

(3) Being responsible for their acts. Careless and uncontrollable acts are unacceptable. Smoking is allowed in permitted areas only. Taking drugs or drinking intoxicants while on duty is prohibited.

(4) Applying safe working practices. Safety procedures and precautions, must be taken at all times. When working in a group, a worker must notify his/her co-worker what the worker is planning to do, such as before energizing or de-energizing a circuit.

(5) Reporting immediately to their supervisors or foremen all unsafe situations found in the electrical distribution systems, working places, or public areas.

(6) Stopping work immediately if they feel unable to handle the job because of their health condition, weather, hazardous location or situation.

(7) Taking charge of their own safety, their co-workers' safety, and their environmental public safety.

(8) Learning how to react when an accident occurs (First aid treatment, resuscitation, victim handling, and emergency calling).

(9) Refusing to work when they feel unqualified for the job.

(10) Keeping the vehicles, tools, equipment, and working place always clean, safe, orderly, and ready for use at all times.

d. All workers. The following responsibilities are for all workers, including supervisors, foremen, and all crew members.

(1) *Accident prevention.* Accident prevention is the most important action in which all workers must participate. This includes—

(a) *Good shop/housekeeping.* Keeping floors, steps, walkways, driveways, aisles, stairways and exit routes always clean and clear of obstacles, blocks, and slippery matter. Keeping exit lights always on

and complying with National Fire Protection Association (NFPA) 101 requirements. Keeping exit doors unlocked from the inside and free of rust and all kinds of obstructions. Removing snow and ice from the outdoor walkways, driveways, stairways, and steps. Placing tools and equipment in a safe and secure position upon completion or suspension of work. Placing small parts in containers when dismantling equipment. Keeping tools in chests or convenient racks when not in use or storing them where they will not create hazards. Removing stacked materials from walkways, driveways, aisles, stairways, and exit routes unless barricades are erected. Not exceeding safe floor loadings, nor placing material on or against any support unless it is known that it can carry the additional weight. Stacking material so that it cannot be overturned easily. Watching the stockpiling: inspecting for stability and for objects which may fall or be dislodged. Fastening the stacked material securely when needed. Using suitable racks for storing pipe, piling, and other materials which cannot be readily formed into stable stacks. Placing timbers and other heavy objects on suitable blocks or sleepers to ensure necessary hand holds. Stacking wire reels with three strips of wood between reels. Not leaving nails projecting from boards or walls where they may cause personal injury. Not removing materials from packing cases or removing concrete forms without removing all projecting nails.

(b) *Safe working areas.* Before starting any electrical work, the following safety checks must be made for all working areas. Area must be clean and free of all slippery materials. Accessible routes for emergency exit must be available. All obstacles must be removed. All unsafe situations must be fixed, such as unstable platforms where the workers stand, loosened electrical parts, and uncovered energized lines. Illumination should be adequate. Working space clearance must be sufficient. Warning equipment such as barriers, traffic cones, and warning signs must be located. Unsafe personal apparel such as neckties, jewelry, and watches must be removed.

(2) *Fire prevention and protection.* This is the duty for all workers, including supervisors, foremen, and all crew members.

(a) *Fire prevention.* Workers must not smoke where smoking constitutes a fire hazard. Workers must not accumulate combustible materials, since they create fire hazards. Material will be deposited in metal containers; containers must be emptied at the end of each day and the contents disposed of in such a way as not to create a fire hazard. Soiled rags must not be kept in lockers. Rubbish or waste must not be burned within 50 feet of a combustible struc-

ture, or within 5 feet of any building. In burning waste and rubbish, heavy smoke must not be allowed to blow into energized equipment. No burning will be done out-of-doors during high winds. Local civil laws banning open fires will be obeyed. Weeds or other rank vegetation must not be permitted to grow in substation yards or pole yards, around oil tanks or other structures, or near buildings.

(b) *Fire protection.* Fire protection includes fire detection and fire extinguishing equipment. All fire detection devices such as smoke detectors, heat detectors, and fire alarm systems should be physically checked and in good operating condition monthly and should be tested the manufacturers instructions every 6 months. Appropriate types of extinguishing equipment must be used for each location, depending on the classes of fires and material stored at the location. There are three main classes of fires (see NFPA 10). Class A involves normal combustible material such as wood and paper. Extinguishing agents for class A fires include water, soda-acid, and multi-purpose dry chemicals. Class B involves oils and flammable liquids. Extinguishing agents for class B fires include CO₂, and dry chemicals. Class C involves electrical equipment. Extinguishing agents for class C fires include CO₂ and dry chemicals. The extinguishing agents Halon 1301 and Halon 1211 are being replaced with either CO₂ or dry chemical and are suitable for combating both Class B and Class C fires, especially at indoor locations. These two Halon agents are slightly toxic in low concentrations (less than 5 percent). Concentrations above 15 percent will cause unconsciousness in a short period of time. Therefore, when these extinguishing agents are used precautionary measures similar to those for toxic agents in a confined spaces should be employed. Workers should not enter confined spaces after using CO₂ or other toxic extinguishers until areas have been thoroughly ventilated. Carbon tetrachloride fire extinguishers should not be used because they are extremely toxic. Fire extinguishing equipment must be inspected NFPA 10.

(3) *Accident reporting.* Upon the occurrence of the accident, the worker involved in the accident must immediately inform his/her supervisor.

(a) *Job related injury report.* If the accident results in either injury to personnel or damage to property, the worker must prepare a written report describing in detail the circumstances of the accident, personnel involved, injured personnel, damaged properties, and problems caused by the accident. The report must be completed within 24 hours after the accident. In addition, the worker must fully cooperate with the authorities who conduct the investiga-

tion of the accident. All items involved in the accident should be identified as evidence and preserved until after the investigation has been completed.

(b) *Vehicle/equipment accident report.* The worker involved in the accident should verbally inform his/her supervisor immediately after the occurrence of the accident. The worker should also provide a written report describing in detail the circumstances of the accident and the extent of the damage within 5 days of occurrence. If the accident causes injuries to the worker or other persons, then the job related injury report described in paragraph 2-2d(3)a above should be applied. The worker should also comply with all local and state traffic laws when required.

(c) *Misuse of authorization report.* No worker can be assigned to do any work of a higher rated classification. However, the worker can be assigned to do any work in a lower classification when, in the opinion of the supervisor or foreman, such assignment is practical and economical. It is the responsibilities of the worker to report to his/her supervisor any misuse or abuse of authorization.

2-3. Safety meetings

Safety meetings consist of scheduled meetings and special meetings for specific jobs.

a. *Scheduled meetings.* Scheduled safety meetings should be held at least once a month. The supervisor will personally conduct these meetings. However, the leader of a crew may also be assigned the chairmanship duties on a rotational basis. Topics of discussion include—

- (1) Two or three safety rules from this manual, using the manual as a textbook, until completed. Then, starting over again.
- (2) Safety rules, methods, and hazards connected with the work in progress .
- (3) Lessons learned. Discussion of any accidents that may have occurred recently.
- (4) Safe driving.
- (5) Accident reports, safety bulletins, posters, and other material -furnished by the installation safety director.
- (6) Safe use of motorized equipment.
- (7) Working on underground lines.
- (8) Working on or near machinery.

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(9) Working in elevated positions.

(10) Grounding systems.

(11) First aid. Practicing various methods of artificial resuscitation: cardiopulmonary resuscitation (CPR), chest pressure-arm lift (Silvester), and mouth-to-mouth artificial respiration. Red Cross or American Heart Association certification is required for all workers.

b. Special meetings. Special meetings are normally held by the supervisor or leader of a crew before beginning a particularly difficult job. All details of the job and difficulties will be discussed. Crew members must understand the precautions to be observed and the procedures to be followed. Members must understand what needs to be done, and know how to accomplish the job. They should be aware of the safety hazards, and learn how to eliminate the hazards by using specific safety equipment such as grounding equipment and protective measures such as body protective devices. Posters, pictures, diagrams and other aids may be used in conducting the meetings. Written work procedures should be prepared for complicated activities which involve access to locations where the electricity cannot be de-energized.

2-4 Safety rule violation penalties

Any worker who fails to observe the safety rules in this manual will be subject to penalties. The severity of the penalty will be related to the seriousness of any previous offenses.

a. First offense.

(1) Verbal reprimand.

(2) Called off the job to study safety rules. +:

(3) Discharge (Applicable to cases of deliberate or willful failure to observe any written regulations where safety of persons and/or property is endangered thereby).

b. Second offense.

(1) Official reprimand.

(2) Lay off without pay, 1 day.

(3) Discharge.

c. Third offense. Discharge.