

QUALIFIED PERSONS

By: John Klingler, P.E.

Safety regulations require companies to use *qualified* persons to perform all work that involves exposure to electrical hazards. Every industrial or commercial facility must have at least one qualified person, if not an employee, then a contractor. The descriptive word “qualified” raises many questions for management and the safety professional.

- What work requires *qualified* persons?
- What are the requirements to be a qualified person?
- Are electricians the only *qualified* persons?
- Are all electricians *qualified*?
- How does someone become *qualified*?
- Once *qualified*, is it forever?

This article provides a brief summary of governing electrical regulations and standards that address qualified persons, practical information on who needs to be qualified, requirements for qualification, and a feasible program to develop qualified employees and keep them qualified. It is written very plainly to be of benefit to all those that must deal with safety compliance, a safe work environment, and with protecting employees, contractors, and vendors.

INTRODUCTION

In the real world of operations, maintenance, service, and construction, employees must be *qualified* if they are going to be exposed to electrical hazards capable of injuring, disabling or even killing. Different industries have different regulations or standards that address this need for *qualified* persons. Although most of these electrical regulations and standards have some minor differences in the wording they use, the intent is the same; employees, contractors, and service personnel must be *qualified* to work on or near electrical hazards.

REGULATIONS AND STANDARDS

The primary regulation that governs most companies is the Code of Federal Regulations (CFR). There are at least three parts of the CFR that address qualified persons for electrical work: Title 29 Part 1910 for **General Industry** and **Electric Utilities**, Title 29 Part 1926 for the **Construction Industry**, and Title 30 Part 75 and 77 for **Coal Mines**.

In addition to the CFR, most companies are also affected by one or more additional electrical safety standards that address qualified persons: the National Fire Protection Association NFPA 70 – **National Electrical Code® (NEC®)** and NFPA 70E – **Standard for Electrical Safety in the Workplace**, and the Institute of Electrical and Electronic Engineers (IEEE) **National Electrical Safety Code (NESC)** – Safety Standard for Overhead and Underground Electric Utility and Communications Utility Installations.

Enforcement of these regulations and standards is provided by the Occupational Safety and Health Administration (OSHA), the Mine Safety and Health Administration

(MSHA), and other Authorities Having Jurisdiction (AHJ), including state, county, and local government jurisdictions, as well as insurance companies.

WHO NEEDS TO BE QUALIFIED

The common thread of most electrical regulations and standards is that all electrical circuits and equipment energized at 50 volts or more must be guarded, covered, protected, or otherwise made inaccessible, except to *qualified* persons. This means only *qualified* persons are allowed to have access to energized circuits and equipment. Anyone opening industrial panels containing exposed energized components must be *qualified*. Only *qualified* persons shall have access to rooms containing exposed energized components unless the components are guarded, covered, or protected by barriers or equally effective means. NFPA 70E specifies a minimum approach boundary for an unqualified person of 42 inches to exposed circuits and equipment energized between 50 and 750 volts, unless continuously escorted by a *qualified* person.

Based on the access restriction of the previous paragraph, it goes without saying that only *qualified* persons may perform electrical work on energized equipment. But the regulations go even further in stating that only *qualified* persons may perform electrical testing. This means that even the fundamental task of voltage verification and checking to see if a circuit is deenergized can only be performed by a *qualified* person.

Lockout/tagout also requires involvement of *qualified* persons. The person in control of the lockout/tagout procedure is required to be *qualified*. A *qualified* person is required to verify the equipment has been properly deenergized before work begins and verify that it is safe to reenergize the equipment after the lockout/tagout procedure has been completed. Additionally, a *qualified* person is required to conduct an audit of lockout/tagout procedures at least annually.

Finally, there are a number of electrical installation standards that are relaxed if a facility utilizes only *qualified* persons to maintain and repair their electrical systems. These frequently used allowances and exceptions are common in the CFR and the NEC®.

Plainly stated, electrical regulations and standards require anyone (including employees, contractors, and service personnel) opening a door or entering a control panel, cabinet, motor control center, panelboard, switchboard, room or vault, that exposes parts energized at 50 volts or more to contact, to be *qualified*.

DESCRIPTION OF A QUALIFIED PERSON

Regulations and standards state to be *qualified* a person must be familiar, through training or experience, with the construction and operation of the equipment and the hazards involved. Some regulations and standards state the *qualified* person must be capable of working safely on energized circuits and be familiar with the proper use of special precautionary techniques, personal protective equipment/clothing, insulating/shielding materials, and insulated tools. Most regulations and standards now require a *qualified* person to be safety trained to recognize and avoid electrical hazards.

A couple of important notes are included with the descriptions of a *qualified* person:

1. Training can be of the classroom type, on-the-job, or a combination of both.
2. An employee undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his level of training and who is under the direct supervision of a *qualified* person is considered to be a *qualified* person for the performance of those duties.
3. A person can be considered *qualified* with respect to certain equipment and methods but still be unqualified for others.

MSHA requires a *qualified* person successfully pass an MSHA approved electrical exam and receive electrical safety retraining annually thereafter.

Many states, counties and cities require persons performing electrical work, primarily contractors and contract electricians, to be licensed. This generally means the person must have documented electrical experience and have passed an electrical exam to prove they are *qualified*.

Plainly stated, to be *qualified*, one of the following is required:

1. Be licensed or certified by a recognized entity such as the IBEW (International Brotherhood of Electrical Workers), MSHA or government jurisdiction such as a state or county. Additionally, the person should be trained in CPR if medical help is not readily available in the workplace.
2. Have documented proof of all the following:
 - Be safety trained to understand, recognize and avoid electrical hazards
 - Trained to determine the nominal voltage and safe working distance around electrical equipment
 - Trained in the selection, use, and care of personal protective equipment, clothing, insulating tools, test equipment, barriers, etc. necessary to perform the task(s)
 - Knowledgeable of the equipment operation and electrical installation
 - Trained to perform task(s) safely
 - Trained in CPR if medical help is not readily available in the workplace

QUALIFIED PERSON VERSUS QUALIFIED ELECTRICIAN

To my knowledge there is only one regulation that specifically requires a *qualified* electrician; 29CFR1910.255 requires resistance welders be installed by a *qualified* electrician. With that exception, I am not familiar with any regulations referencing *qualified* electricians, only *qualified* persons. There are differences between *qualified* electrician and *qualified* person. The differences being the extent of the person's electrical knowledge, training, and experience.

Qualified electricians should have a good general understanding of electricity, a broad-base of technical electrical training, electrical safety training, and actual experience performing electrical tasks. The *qualified* electrician should be capable of performing a

wide variety of electrical tasks related to their work environment, have the required PPE for electrical hazards encountered in the workplace, and know when and how to use and care for the PPE. They should be trained on the capabilities of their test equipment and safety trained on how to use and care for the equipment.

A *qualified person* is a person trained to safely perform a limited number - possibly only one specific task, involving exposure to electrical hazards. This person must be safety trained to understand, recognize and avoid the electrical hazards associated with the specific task they are to perform, understand their limitations in performing the task, equipped with the proper PPE and test equipment for the task, and know when and how to use and care for the PPE and equipment.

This is not to suggest that everyone can be or should be *qualified*. However, it does suggest there is nothing wrong with employees other than electricians performing specific tasks involving limited exposure to energized parts, provided they meet the criteria of a *qualified* person for that task.

OSHA recognizes that persons in job classifications other than electrician may occasionally be exposed to electrical hazards; this is evident in 29CFR1910.332 where OSHA requires safety training on electrical regulations 29CFR1910.331-.335 for those persons (not limited to electricians) who face a risk of electric shock. The persons they identify as most likely to need this training include but are not limited to:

Blue Collar Supervisors	Electricians
Electrical and Electronic Engineers	Mechanics and Repairers
Electrical and Electronic Equipment Assemblers	Painters
Industrial Machine Operators	Riggers and Roustabouts
Material Handling Equipment Operators	Stationary Engineers
Electrical and Electronic Technicians	Welders

In addition OSHA requires electricians and other *qualified* persons to receive additional safety training as was described previously.

Plainly stated, *qualified* persons must have appropriate training, knowledge, and skills for the task(s) which they are to perform.

QUALIFYING AND MAINTAINING QUALIFICATION

Determining the qualification of an employee is the responsibility of management, not the government. Management must determine the scope of work expected of each employee and assess the workplace for hazards the employee may encounter. Once these assessments are complete, management can established a minimum skill and knowledge level necessary to complete the scope of work safely and effectively. The employee's personnel file should reflect the employee's experience and technical training as well as the safety training to perform the task safely and effectively.

Plainly stated, documentation, documentation, and documentation is critical in supporting your decision to *qualify* an employee. The employee's personnel file should include documentation of formal electrical training, years of experience in performing

similar tasks, training on electrical equipment and circuits, electrical safety training, training on the applicable regulations and standards, and training on PPE.

Retraining and documentation of retraining are equally important. Some conditions that indicate the need for retraining include changes in the workplace, in the equipment, in the PPE, in the regulations and standards, or deficiencies in actual task performance.

A SUGGESTED APPROACH TO SATISFYING QUALIFICATION REQUIREMENTS

Proof of attendance at a one-day training session on NFPA 70E is **not** adequate to *qualify* your employees to perform electrical work. Although NFPA 70E training is definitely recommended, if not required for your *qualified* employees, it should only be a single component of a much broader-based training program.

Management should start by preparing a list of the task(s) on or near exposed energized parts that the *qualified* person or electrician is expected to perform; often referred to as a job/task analysis (JTA).

Next, complete a job hazard analysis (JHA) and prepare a description of the skill and knowledge required to perform the job safely; this must include the training requirements discussed previously.

Now compare these requirements to the knowledge, skills, and training of the person expected to be *qualified* to perform the task(s). This comparison should identify the areas of weakness and be a guide to developing a training schedule to address these weaknesses.

Training budgets are limited, so concentrate on the weakest areas first and keep training until you have addressed the needs of the employee to perform the task(s) safely. Try to develop a 3 year plan, which will coincide with updates to the regulations and standards. Schedule a minimum of 2 to 5 days of training annually for each *qualified* employee.

The following is a suggestion of training for *qualified* persons:

YEAR	TRAINING	ELECTRICIAN/ TECHNICIAN	TASK QUALIFIED PERSON
1	NFPA 70E	1 day	1 day
	ELECTRICAL SAFETY	1 day	
	LOCKOUT / TAGOUT	½ day	½ day
	TASK SAFETY TRAINING	1 day	1 day
	PRACTICAL ELECTRICAL*	1 day	
2 - 3	ELECTRICAL SAFETY	1 day	½ day
	LOCKOUT / TAGOUT	½ day	½ day
	TASK SAFETY TRAINING	½ day	1 day
	PRACTICAL ELECTRICAL*	2 days	

* Practical Electrical Training may include training on:

- National Electrical Code®
- Programmable Logic Controllers (PLC)
- Variable Speed Drives (VSD/VFD)

- Electrical Troubleshooting
- Air Conditioning and Refrigeration
- Grounding and Bonding