

# A R C N E W S F L A S H

## Qualified Person? The Bar Has Been Raised

By Palmer Hickman

A number of changes have recently taken place in the safety arena that raise the bar for electrical safety. As you are likely aware, the 2002 National Electrical Code (NEC) is where a number of these new and enhanced safety requirements are found.

These recent changes include three major additions or updates. First is the requirement that a qualified person receive safety training on the hazards involved. Second, a new NEC section requires the marking of equipment to warn of the potential for electric arc flash hazards. And finally the new code includes a fine-print note alerting users of the NEC to the benefits of National Fire Protection Association 70E Standard for Electrical Safety Requirements for Employee Workplaces (NFPA 70E). We will look more deeply at the changes in the “qualified person” segment of the code.

To meet the definition of a qualified person before the recent change, one was required to have the skills and knowledge related to the construction and operation of the electrical equipment and installations. Now, in addition to that, the NEC stipulates that one must receive safety training on the hazards involved. Some of the hazards a qualified person should now be trained to recognize and avoid include electric shock, arc flash and arc blast. Electric shock is a hazard that has long been recognized. Arc flash and arc blast are terms that may be somewhat new to the electrical community.

A new Section 110.16 in the 2002 NEC is intended to warn qualified persons of the hazard of arc flash and is a major step toward increasing the awareness of this potential for injury and death. Additionally, the fine print note (FPN) to Section 110.16 references NFPA 70E and is a crucial link between the NEC and NFPA 70E. The NEC is primarily an electrical installation document and does not contain requirements for electrical safety-related work practices. The FPN to Section 110.16 states that NFPA 70E provides assistance in determining severity of potential exposure, planning safe work practices and selecting personal protective equipment. Employee training for qualified persons as outlined in NFPA 70E requires, in part, that such persons shall also be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools and test equipment.

The FPN linking the NEC and NFPA 70E may have even broader implications. Consider that while the Occupational Safety and Health Administration (OSHA) requires employers to furnish a place of employment free from recognized hazards and employees to comply with occupational safety and health standards, its regulations don't always specify exactly how to do so. Many of OSHA's electrical requirements are written in performance language requiring that something be done but does not necessarily state how to accomplish what is required. The provisions of NFPA 70E may well be the answer.

Perhaps the statement “OSHA is the shall, and 70E is the how” best captures the link between OSHA requirements and the NFPA 70E Standard. NFPA 70E is developed through a consensus standards development process approved by the American National Standards Institute (ANSI). What is required by federal law in OSHA regulations may well be accomplished by an ANSI standard such as NFPA 70E.

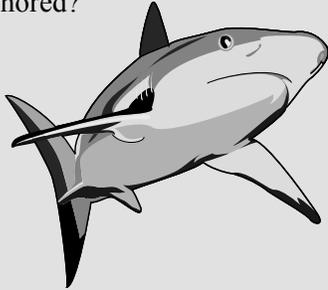
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What defines a qualified person and the training required to meet that definition will most certainly go a long way towards making a “qualified person” by definition truly a qualified person in practice.



## Qualified Person? (continued)

People typically do not knowingly violate federal law. Most people probably have never ripped off a mattress tag. Airline passengers routinely fasten their seatbelts and put their seatbacks and tray tables in the full and upright position. Why are some federal laws followed routinely without question, while others, such as working on exposed energized electrical equipment, all too often ignored?



Perhaps a full understanding of the hazard is missing. One would not think of petting a shark. A bombsquad worker would not perform his task in a T-shirt and jeans. The hazards associated with working on or near energized electrical equipment is much like entering a trench without a trench box. Will the walls collapse? Perhaps not today. Maybe not this time. How many bullets have to be out of the chamber before it is safe to play Russian roulette? The safe answer is - all of them. Eliminate the hazard. Place electrical equipment into an electrically safe work condition where it is feasible or will not create a greater or increased hazard.

Clearly the bar has been raised for electrical safety. A new understanding of what defines a qualified person and the training required to meet that definition will most certainly go a long way towards making a “qualified person” by definition truly a qualified person in practice. Requiring that equipment be marked to warn qualified persons of potential arc flash hazards is a huge step towards increasing the recognition of that hazard. The link to NFPA 70E provides a mechanism to achieve the purpose of the National Electrical Code, namely, the practical safeguarding of persons and property from the hazards arising from the use of electricity. Let’s remember to “buckle up” and refrain from petting the shark.

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## All In Hand

# Protecting the Hands You Use for More Than Just Work

*Editor's note: This is the first in a three-part article focusing on gloves as part of personal protection equipment. This issue, we cover the basics of insulating gloves. In our next issue, we'll take a look at liners and protectors. In the final installment, we'll talk about rubber insulating glove inspection, storage and care.*

Your hands are essentially the most important tools you have on the job. Without them, all other equipment is useless. After all, the best tools on the market still need a skilled person behind them to make them function.

So it follows that protecting your hands is among the highest priority safety steps you can take. By following guidelines and using the proper protective equipment, you can protect yourself when you make accidental or intentional contact with the electrical hazards.

There are three main layers to hand protection, and each must accomplish its set task for a complete solution to safely working with electrical lines. Those three layers are liners, rubber insulating gloves and leather protectors.

The second layer - the rubber insulating gloves - is where most of the protection from electrical current is found. These are among the most important articles of personal protection for electrical workers. They have to incorporate the necessary high dielectric and physical





# Protecting them from Electrical Hazard

strength as well as the comfort and flexibility to make them wearable. Proper fit is the first step to flexibility and comfort during wear. Measure around the palm of your hand and allow a little extra room for liner gloves. The circumference of your hand in inches provides you with the size of the glove. Most gloves come in full and half sizes from 8 to 12. Getting the proper fit helps minimize chafing and fatigue and will extend the life of the glove itself.

Rubber insulating gloves are made in a variety of classes, which correspond to the thickness of the gloves and the level of protection they offer (see the ASTM Classification Chart for a comparison of classes). Aside from using the right class of gloves for the work you are doing, there are numerous glove styles each electrical worker can choose from.

Rubber mittens offer the same protection as the five-finger gloves but keep the wearer warmer during the harsh cold months. The thumb and index fingers have their own compartments, but the middle, ring and pinky fingers share one. This allows for full functionality and dexterity while keeping most of the hand warmer.

Also available are different styles of cuff. The regular cuff is the default if no other style is specified when ordering. The regular cuff shape is in a straight angle out from the wrist, and the cuff is cut parallel to the wrist line. The bell and flare cuffs have more room immediately after the wrist to allow for heavier clothing and more layers in winter and more airflow to the hands

in summer. The bell widens just after the wrist and continues to the cuff in a relatively straight line. The flare widens and continues to widen gradually to the cuff. All 18-inch long gloves are available with straight and contour cut at the end. The contour cuff is cut at an angle to allow for more comfortable bending at the elbow. The front of the arm is covered 18 inches, but the back won't bunch or bend when the elbow is bent. Many electrical workers may find it beneficial to have two types of glove to assure maximum comfort during different times of the year. Stop by Salisbury's booth at any show to try on for fit and style to find the cut that suits you best.



**ASTM Classification for Salisbury Rubber Gloves**

Class	Label Color	Glove Colors	Proof Test Voltage AC/DC	Max. Use Voltage AC/DC	Notes
00	Beige	red, blue	2,500/10,000	500/750	gloves are extremely flexible to make working with small parts easier
0	Red	red, black, yellow, blue	5,000/20,000	1,000/1,500	
1	White	black, yellow in/black out, red in/black out	10,000/40,000	7,500/11,250	dual colors make inspection for cuts or wear easier
2	Yellow		20,000/50,000	17,000/25,500	
3	Green		30,000/60,000	26,500/39,750	
4	Orange		40,000/70,000	36,000/54,000	

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