

Electrical Safety Terms

Term	Definition
Arc-Blast	A pressure wave created by the heating, melting, vaporization, and expansion of conducting material and surrounding gases or air.
Arc-Flash	The sudden release of heat energy and intense light at the point of an arc. Can be considered a short-circuit in the air, usually created by accidental contact between live conductors.
Arc-Flash Hazard Assessment	A study that analyzes potential exposure to Arc-Flash hazards. The outcome of the study establishes Incident Energy levels, Hazard/Risk Categories, Arc-flash Protection Boundary and required level of PPE.
Arc-Flash Protection Boundary	A protection boundary established to protect personnel from Arc-Flash hazards. This boundary is the distance at which an unprotected worker can receive a second-degree burn to bare skin.
ATPV	Arc Thermal Performance Value (PPE acronym) which is defined in ASTM F 1959, <i>Standard Test Method for Clothing</i> , as the incident energy on a material or multilayer system of materials that result in a 50% probability that sufficient heat transfer through the tested specimen is predicted to cause the onset of a second degree skin burn injury based on the Stoll curve, cal/cm ² .
Calorie	The amount of heat needed to raise the temperature of one gram of water by one degree Celsius. 1 cal/cm ² is equivalent to the exposure on the tip of a finger by a cigarette lighter for one second.
Current-Limiting Overcurrent Protective Device	A device that, when interrupting current in its current limiting range, reduces the current flowing in the faulted circuit to a magnitude substantially less than that obtainable in the same circuit if the device were replaced with a solid conductor having comparable impedance.
Deenergized	Equipment or components that have had all energy sources removed.
Electrical Hazard	A dangerous condition caused by equipment failure or contact with an energized conductor or circuit part. Hazards include shock, Arc-Flash, burns and arc-blast.
Electrical Hazard Assessment	A study to identify the potential electrical hazards that may be exposed to personnel. The assessment should address both shock and Arc-Flash hazards.

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Electrically Safe Work Condition	Condition where the equipment and or circuit components have been disconnected from all electrical energy sources, locked/tagged out, and tested to verify all sources of power are removed.
Electrical Safety Program	A documented program that identifies policies, procedures, principles and safe work practices to protect workers exposed to electrical energy.
Flame-Resistant (FR)	The property of material whereby combustion is prevented, terminated, or inhibited following the application of a flaming or non-flaming source of ignition, with or without subsequent removal of the ignition source. Flame resistance can be inherent to the material or applied by a specific treatment.
Hazard/Risk Category	A means of classifying the hazard to personnel as defined by NFPA 70E. Each category (0-4) requires PPE and is related to incident energy levels.
Incident Energy	The amount of thermal energy impressed on a surface generated during an electrical arc at a certain distance from the arc. This is typically measured in cal/cm ² .
Interrupting Rating (IR, I.R., AIR or A.I.R.)	The highest rms symmetrical current, at specified test conditions, which the device is rated to interrupt. The difference between Interrupting Capacity and Interrupting Rating is in the test circuits used to establish the ratings.
Limited Approach Boundary	An approach boundary to protect personnel from shock. A boundary distance is established from an energized part based on system voltage. To enter this boundary, unqualified persons must be accompanied by a qualified person and must use PPE.
Live Parts	Energized electrical conductive components or circuit parts.
Personal Protective Equipment (PPE)	Equipment used to protect personnel which can include clothing, tools, etc.
Prohibited Approach Boundary	An approach boundary to protect personnel from shock. Work in this boundary is considered the same as making direct contact with an energized part. Only qualified persons are allowed to enter this boundary and they must use PPE.
Protective Device Coordination Study	An analysis that determines the opening time of the protective devices. Protective device settings are evaluated and recommendations are provided for better protective device coordination (where applicable).

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Qualified Person	One who has the skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved.
Restricted Approach Boundary	An approach boundary to protect personnel from shock. A boundary distance is established from an energized part based on system voltage. Only qualified persons are allowed to enter this boundary and they must use PPE.
Shock	A trauma subjected to the body by electrical current. When personnel come in contact with energized conductors, it can result in current flowing through their body often causing serious injury or death.
Shock Hazard Assessment	A study that analyzes potential exposure to electrical Shock hazards. The outcome of the study establishes circuit voltage and shock protection boundaries.
Short-Circuit Current Rating	The prospective symmetrical fault current at a nominal voltage to which an apparatus or system is able to be connected without sustaining damage exceeding defined acceptance criteria (previously known as withstand rating).
Short-Circuit Study	A study which analyzes and determines the available phase and ground fault duties for all buses and equipment. The analysis outputs will indicate fault currents available and device interruption ratings required at each bus. Any equipment which is not rated for the available fault current is also identified.
Single-Line Diagram	A diagram that shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used in the circuit or system.
Unqualified Person	A person that does not possess all the skills and knowledge or has not been trained for a particular task.
Working Distance:	Closest distance a worker's body, excluding arms and hands, would be exposed to the arc. (Typically 18 inches at 480V or less).