SAFETY SERVICES COMPANY

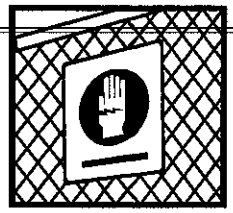
Tailgate/Toolbox Safety Training

Safety Services Company-Safety Meeting Division, PO Box 6408 Yuma, AZ 85366-6408 Toll Free (866) 204-4786

Company Name: _____ Job Site Location: _____

Date: _____ Start Time: _____ Finish Time: _____ Foreman/Supervisor: _____

Topic 296: Electrical Hazards (Working Spaces)



Introduction: Working spaces around electrical equipment must be provided with sufficient access and maintained to permit ready and safe operation of any equipment likely to require examination, adjustment, servicing, or maintenance. These spaces have requirements to assure that safe working distances can be maintained from energized parts and equipment which may provide possible arc flash hazards. Following are requirements for electrical working spaces:

Working clearances: The dimension of the working space in the direction of access to live parts which will require examination, adjustment, servicing, or maintenance while live may not be less than:

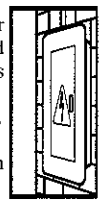
Nominal Voltage to Ground	Minimum Clear Distance in Feet Condition (1)	Condition (2)	Condition (3)
0 – 150 V	3	3	3
150 – 600 V	3	3.5	4
601 – 2500 V	**3**	**4**	**5**
2501 – 9000	**4**	**5**	**6**
9001 – 25,000 V	**5**	**6**	**9**
25,001 – 75 kV	**6**	**8**	**10**
Above 75 kV	**8**	**10**	**12**

Condition

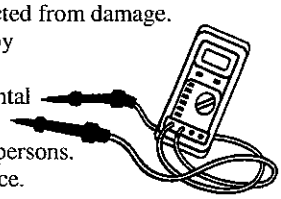
1) **Exposed live parts** on one side and no live parts or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by suitable wood or other insulating materials. Insulated live or insulated bus bars operating at not over 300 volts to ground will not be considered live parts.

2) **Exposed live parts** on one side and grounded parts on the other side. Concrete, brick, or tile walls will be considered as grounded.

3) **Exposed live parts** on both sides of the workspace (not guarded as provided in Condition 1) with the operator in between.



- **Distances must** be measured from the live parts if they are exposed, or from the enclosure front or opening if the live parts are enclosed.
- **The width of working spaces** in front of the electric equipment must be the width of the equipment, or 30 in. whichever is greater. In all cases the work space must permit at least a 90 degree opening of the equipment door or hinged panel.
- **Working space is not required** in back of assemblies such as dead-front switchboards or motor control centers where there are no renewable or adjustable parts such as fuses or switches on the back and where all connections are accessible from locations other than the back.
- **Working space** may not be used for storage. When exposed for inspection or servicing, normally enclosed live parts, if in a passageway or general open space must be suitably guarded.
- **At least one** entrance of sufficient area must be provided to give access to the working space about electric equipment.
- **Lighting must** be provided for all working spaces about service equipment, switchboards, panelboards, and motor control centers installed indoors.
- **The minimum headroom** of working spaces about service equipment, switchboards, panelboards, or motor control centers is 6 feet 6 inches.
- **All switchboards,** panels, distribution boards, and motor control centers must be located in dedicated spaces and protected from damage.
- **Outdoor electrical equipment** must be installed in suitable enclosures and must be protected from accidental contact by unauthorized personnel, vehicular traffic, or by spillage or leakage from piping systems.
- **Guarding of live parts:** Live parts of electric equipment operating at 50 volts or more must be guarded against accidental contact by approved cabinets, other forms of approved enclosures, or by any of the following means:
  - ✱ **By location** in a room, vault, or similar enclosure, or on a balcony, or platform that is accessible only to qualified persons.
  - ✱ **By permanent**, substantial partitions or screens arranged so that only qualified persons will have access to the space.
  - ✱ **By elevation** of 8 feet or more above the floor or other working surface.



- **In locations where** electric equipment is likely to be exposed to physical damage, enclosures or guards must be placed to prevent damage.
- **Entrances to rooms** or locations containing exposed live parts must be marked with conspicuous warnings forbidding unqualified persons entry.
- **The walls, roof, floors, and doors** of vaults containing equipment over 600V nominal, must be constructed with enough structural strength for the load they will carry and have a minimum fire rating of 3 hours.
- **Indoor electrical installations** that are accessible to unqualified personnel must have metal-enclosed equipment. Electrical installations accessible only through a lock and key will be considered accessible only to qualified personnel.
- **On switchboard and control** panels exceeding 600V and 6 ft. in width, there must be one entrance at each end of the equipment.
- **Unguarded live parts** above working space must be maintained at elevations not less than: 601-7500V__9ft., 7501-35,000V__9 ½ ft., over 35kV__9 ½ + 0.37in. per kV.
- **Since low voltage** and high voltage equipment have several differing requirements for working space, if equipment is located in the same enclosure, it must be suitably separated and conspicuously marked to differentiate voltages.

Conclusion: Electrical energized equipment is a contact hazard at all times. Allowing proper safe distances in which to work will help to minimize hazards from arc faults. All equipment must be properly marked for arc flash hazards to safeguard personnel who work in areas with electrical hazards.

Work Site Review

Work-Site Hazards and Safety Suggestions: _____

Personnel Safety Violations: _____

Employee Signatures: *(My signature attests and verifies my understanding of and agreement to comply with, all company safety policies and regulations, and that I have not suffered, experienced, or sustained any recent job-related injury or illness.)*

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Foreman/Supervisor's Signature: _____

These guidelines do not supercede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.