

# MINIMUM APPROACH DISTANCE (MAD)



“Minimum Approach Distance” or MAD is defined by OSHA as, “The closest distance an employee is permitted to approach an energized or a grounded object.” Unfortunately, it is often misunderstood and the distances often violated.

MAD applies to any exposed energized part or line. This means they are not isolated or guarded. MAD also applies to any part of the body that is not protected by PPE like rubber insulating gloves.

Whenever you are dealing with installations at 50 to 300 volts the protection required is pretty basic. Avoid contact with the exposed parts and use the protective equipment, such as rubber insulating gloves suitable for the voltages involved.

When dealing with voltages over 300 volts the required protection becomes more complex and MAD is critical. If you are trying to determine MAD, consider the following:

- Maximum voltage
- Wave shape of this voltage
- Configuration of the “electrodes” forming the end points of the gap
- Insulating medium in the gap
- Atmospheric conditions present

Additionally, it was determined that MAD must add an extra distance to account for ergonomic considerations, or human error. Distances must compensate for the inadvertent movement of the worker relative to an energized part or the movement of the part relative to the worker.

When voltages are below 72.5 kV the adder is 2 feet. For voltages between 72.6 and 800 kV, live-line tools (hot sticks) are usually used. By design they tend to set the distance automatically. At these voltages you also need to be more precise and movements are such that a smaller distance is needed. Only 1 foot has been added for voltages between 72.6 and 800 kV.

If you are considering movement, it is important to take into account the potential movement of the energized line or part. Make sure the conductors you are working on cannot move. Even if you are protected against contact by rubber insulating gloves and sleeves, it will still be considered a violation if the energized line comes within the MAD to any other part of the body.

As a result, tables were created identifying the MAD for specific voltages and conditions. Check the appropriate table for the applicable MAD. This includes tables for phase to phase, phase to ground, and MAD when transient voltages are known as well as for the effect of altitude on MAD.



## DISCUSSION QUESTIONS

**What is MAD?**

**If you are trying to determine MAD, what would you consider?**

# SAFETY TALK ATTENDANCE ROSTER



COMPANY: \_\_\_\_\_ JOB/DEPT: \_\_\_\_\_

DATE: \_\_\_/\_\_\_/\_\_\_\_\_ TIME: \_\_\_\_\_

TOPICS ADDRESSED: \_\_\_\_\_

EMPLOYEE'S SIGNATURES:

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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EMPLOYEE SUGGESTIONS AND RECOMMENDATIONS: \_\_\_\_\_

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\_\_\_\_\_  
\_\_\_\_\_

ACTION TAKEN: \_\_\_\_\_

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\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Supervisor's Signature

\_\_\_/\_\_\_/\_\_\_  
Date

\_\_\_\_\_  
Safety Coordinator's Signature

\_\_\_/\_\_\_/\_\_\_  
Date