

Test Administration Instructions



SAFETY EXCELLENCE INITIATIVE

How to Administer Tests to Trainees

In this document, you will find a 20-question multiple-choice test that corresponds with a particular MCAA Safety Training Video.

1. Ensure that you have the test that corresponds with the planned video training.
2. Make one copy of the test for each trainee.
3. Give one test to each trainee. Remind them to put their name on each page of their copy in case pages become separated.
4. Collect all test papers after they are completed.
5. Grade the tests using the answer keys provided in the "Answer Keys" document at www.mcaa.org/private/videos.
6. Return the graded test papers to each trainee. Make sure they understand the correct answers to all of the test questions they answered incorrectly.
7. Collect **ALL** of the test papers and place them in a secure file.
8. Keep the completed test papers with your documentation for this video to show proof of worker training.

Power Down: Electrical Safety for Service



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Directions – Circle the letter corresponding to the best answer for each question.

1. What are the two biggest safety concerns associated with work involving electrical hazards?
 - a. Electrical shock and arc flash.
 - b. Electrocution and burns.
 - c. Electrical shock and fire.
 - d. Fire and explosions.
2. Light and heat generated from a high-energy electric arc is referred to as
 - a. a flash.
 - b. a blast.
 - c. an explosion.
 - d. an arc flash.
3. Electrical shock occurs when a worker becomes
 - a. the easiest path for current to travel to ground.
 - b. part of the electrical circuit.
 - c. a and b.
 - d. none of the above.
4. When working on HVAC equipment pushing 480 volts or less, affected workers have to avoid unprotected contact with
 - a. energized electrical conductors.
 - b. energized panel boxes.
 - c. energized wiring and disconnects.
 - d. energized electrical conductors and circuit parts.
5. What percentage of arc flashes are caused by human error, such as phase to phase or phase to ground contact?
 - a. 30%
 - b. 50%
 - c. 70%
 - d. 90%

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6. _____ of arc flashes are caused by equipment failures.
 - a. 10%
 - b. 20%
 - c. 30%
 - d. 50%
7. An arc flash can reach temperatures that are _____ times hotter than the surface of the sun.
 - a. 2
 - b. 4
 - c. 6
 - d. 8
8. The best way for you to protect yourself when performing work involving electrical hazards is to
 - a. observe the appropriate protective measures and wear the proper personal protective equipment.
 - b. keep yourself insulated from energized electrical circuits.
 - c. use insulated tools.
 - d. test the electrical circuits with a volt meter before you start to work.
9. As a qualified person your safe approach boundary is the greater of the *Restricted Approach Boundary* and the Arc Flash Boundary designated for
 - a. electrical shock and arc flash protection.
 - b. arc flash and arc blast protection.
 - c. electrocution and arc flash protection.
 - d. fire hazards and arc flash protection.
10. The safe approach boundary for a qualified person working on equipment pushing 480 volts or less is the _____ safe distance that person should keep from energized electrical conductors and circuit parts.
 - a. approximate
 - b. maximum
 - c. estimated
 - d. minimum

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11. When a qualified mechanical service technician is working near equipment pushing 480 volts or less, but is not wearing the necessary personal protective equipment, his safe approach boundary is _____ feet.
 - a. 4
 - b. 5
 - c. 6
 - d. 10
12. The safe approach boundary also applies to
 - a. GCs and CMs.
 - b. visitors.
 - c. other trades.
 - d. any tools or equipment that you will be carrying.
13. Some of the personal protective equipment you'll need for work on energized equipment pushing 480 volts or less includes
 - a. a hardhat, balaclava, ear plugs, and steel toe boots.
 - b. an arc-rated face shield, safety glasses, and Nomex suit.
 - c. an arc-rated long sleeve shirt and pants or coveralls.
 - d. leather footwear, Class E hardhat, cotton gloves.
14. Class 00 rubber gloves have to be sent away for dielectric testing at least every _____ months.
 - a. 3
 - b. 6
 - c. 12
 - d. 24
15. You should inspect your Class 00 rubber gloves
 - a. every time before you use them.
 - b. every week.
 - c. every month.
 - d. every 6 months.

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16. For work on equipment pushing 480 volts or less, the arc rated clothing, balaclava, and face shield must have an arc rating of at least _____ cal/cm² (calories).
- a. 4
 - b. 8
 - c. 10
 - d. 20
17. Your volt meter should be rated for the voltage you'll be testing and approved by
- a. OSHA.
 - b. NFPA.
 - c. UA.
 - d. Underwriters Laboratories (UL).
18. The only acceptable reason for working on equipment with exposed, energized electrical conductors or circuit parts is to
- a. change filters.
 - b. make minor repairs.
 - c. troubleshoot.
 - d. service the unit.
19. Work on equipment with built-in interlocking disconnects requires you to wear all of the appropriate personal protective equipment
- a. the entire time you're making repairs or servicing the unit.
 - b. until the equipment is locked out.
 - c. until troubleshooting is completed.
 - d. never – PPE is not needed for work on this type of equipment.
20. After completing troubleshooting on equipment pushing 480 volts or less
- a. immediately make the necessary repairs.
 - b. use insulated tools to keep from getting shocked.
 - c. shut off the power, lock it out, and test the equipment to ensure that the power is dead.
 - d. use rubber insulating mats to keep from getting shocked.