

Optional Information

Name of School:

Date of Inspection:

Vocational Program/Course/Room:

Signature of Inspector:

**Welding With Arc Welding Equipment
Self Inspection Checklist**

Guidelines: This checklist covers some of the regulations issued by the U.S. Department of Labor - OSHA under the General Industry standards 29 CFR 1910.254 & 1910.306 and the Construction standards 1926.351 & 1926.353. All of these regulations were adopted by reference. The checklist also covers regulations issued by the New Jersey Department of Community Affairs (NJDCA) under the Uniform Fire Code (N.J.A.C. 5:70-3.2). The Uniform Fire Code has adopted by reference the model code of the Building Officials and Code Administrators International, Inc. known as the "BOCA National Fire Prevention Code/1996." It applies to the use of arc welding and cutting equipment. This checklist must be used in conjunction with the checklist "Welding, Cutting and Brazing-General requirements." Questions marked with the symbol (☞) may require the help of an outside expert. Any question marked with the symbol (☹) indicates a history of previous violations in vocational schools.

General	<u>Please Circle</u>
	Y N N/A DK
1. Are students/employees properly instructed and qualified to operate arc-welding equipment? [29 CFR 1910.254(a)(3), 1926.351(d) and N.J.A.C. 5:70-3.2 {BOCA F-2203.2}]	
Comments/Corrective Action:	

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Application of Arc-Welding Equipment

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| 2. | Does arc-welding equipment comply with the Requirements for Electric Arc-Welding Apparatus, NEMA EW-1-1962, National Electric Manufacturers Association or the Safety Standard for Transformer-Type Arc Welding Machines, ANSI C33-2-1956, Underwriters Laboratories? [29 CFR 1910.254(b)(1)] | Y N N/A DK |
| 3. | Are arc-welding machines designed and constructed to operate under their anticipated environmental conditions including unusual altitude, temperature, corrosive chemicals, steam, humidity, oil vapors, flammable liquids, vibration/shock, dust or weather? [29 CFR 1910.254(b)(2)] | Y N N/A DK |
| 4. | Are alternating-current manual arc-welding and cutting machine voltages limited to 80 volts? [29 CFR 1910.254(b)(3)(i)(A)] | Y N N/A DK |
| 5. | Are alternating-current automatic arc-welding and cutting machine voltages limited to 100 volts? [29 CFR 1910.254(b)(3)(i)(B)] | Y N N/A DK |
| 6. | Are manual or automatic direct-current (DC) arc-welding and cutting machine voltages limited to 100 volts? [29 CFR 1910.254(b)(3)(ii)(A)] | Y N N/A DK |
| 7. | Are terminals for welding leads protected from accidental contact? [29 CFR 1910.254(b)(4)(iv)] | Y N N/A DK |
| 8. | Are only manual electrode holders used specifically designed for arc welding and cutting? [29 CFR 1926.351(a)(1)] | Y N N/A DK |

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| 9. | Are manual electrode holders of a capacity capable of safely handling the maximum rated current required by the electrodes? [29 CFR 1926.351(a)(1)] | Y N N/A DK |
| 10. | Are all current-carrying parts passing through the portion of the holder which the arc welder or cutter grips in his hand and the outer surfaces of the jaws of the holder fully insulated against the maximum voltage encountered to ground? [29 CFR 1926.351(a)(2)] | Y N N/A DK |
| 11. | Are arc welding and cutting cables completely insulated, flexible and capable of handling the maximum current requirement of the work in progress? [29 CFR 1926.351(b)(1)] | Y N N/A DK |

Installation of Arc-Welding Equipment

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| 12. | Are arc-welding machine frames or cases electrically grounded? [29 CFR 1910.254(c)(2)(i) and N.J.A.C. 5:70-3.2{BOCA F-2206.1}] | Y N N/A DK |
| 13. | Are grounding circuits checked to ensure that the circuit between the ground and the grounded power conductor has resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current? [29 CFR 1926.351(c)(f)] | Y N N/A DK |
| 14. | Do ground return cables have a safe current carrying capacity equal to or exceeding the specified maximum output capacity of the arc welding or cutting unit which it services? [29 CFR 1926.351(c)(1)] | Y N N/A DK |

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15. Are chains, wire ropes, cranes, hoists, elevators and conduits containing electrical conductors prohibited from being used to complete work-lead circuits? [29 CFR 1910.254(c)(2)(ii) & (iii) and 1926.351(c)(2)] Y N N/A DK
16. If pipes are temporarily used to complete work-lead circuits, are pipes free from threaded, flange bolted or caulked joints? [29 CFR 1910.254(c)(2)(ii)] Y N N/A DK
17. If a structure or pipeline is used as a ground return circuit, are periodic inspections performed to determine that the required electrical contact exists at all joints? [29 CFR 1926.351(c)(3) and N.J.A.C. 5:70-3.2{BOCA F-2206.2}] Y N N/A DK
- Note: The generation of an arc, sparks, or heat at any point shall cause rejection of the structures as a ground circuit. If the structure or pipelines are used continuously, all joints should be bonded and periodic inspections conducted to ensure that no condition of electrolysis or fire hazard exists by virtue of such use.
18. Are all grounding connections checked to determine that they are mechanically strong and electrically adequate for the required current? [29 CFR 1910.254(c)(2)(v), 1926.351(c)(6) and N.J.A.C. 5:70-3.2{BOCA F-2206.1}] Y N N/A DK
19. Is a disconnecting switch with overcurrent protection located at or near each arc-welding machine which is not equipped with such a switch? [29 CFR 1910.254(c)(3)(i) and 29 CFR 1910.306(d)(1)] Y N N/A DK

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| 20.⊗ | Is a disconnecting switch with overcurrent protection provided for each outlet intended for connection to a portable welding machine? [29 CFR 1910.254(c)(3)(i)] | Y N N/A DK |
| 21. | For individual welding machines, is the rated current-carrying capacity of the supply conductors not less than the rated primary current of the welding machine? [29 CFR 1910.254(c)(3)(ii)] | Y N N/A DK |
| 22.☞ | Are all <i>DC</i> arc-welding machines connected with the same polarity? [29 CFR 1910.254(c)(3)(iv)(A)] | Y N N/A DK |
| 23.☞ | Are all <i>AC</i> arc-welding machines connected to the same phase of the supply circuit and with the same instantaneous polarity? [29 CFR 1910.254(c)(3)(iv)(B)] | Y N N/A DK |

Operation and Maintenance

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| 24. | Are students/employees assigned to operate or maintain arc welding equipment acquainted with the requirements of 29 CFR 1910.252 and 1910.254? [29 CFR 1910.254(d)(1)] | Y N N/A DK |
| 25. | Are students/employees engaged in gas-shielded arc-welding acquainted with Recommended Safe Practices for Gas-Shielded, Arc-Welding A6.1-1966, American Welding Society? [29 CFR 1910.254(d)(1)] | Y N N/A DK |
| 26. | Are arc-welding machine hook-ups checked before starting operations? [29 CFR 1910.254(d)(2)] | Y N N/A DK |
| 27. | Is coiled welding cable spread out before use to avoid serious overheating and damage to insulation? [29 CFR 1910.254(d)(2)] | Y N N/A DK |

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| 28. | Is the grounding of the welding machine frame checked before starting operations? [29 CFR 1910.254(d)(3)] | Y N N/A DK |
| 29. | Are arc-welding machines checked for leaks of cooling water, shielding gas or engine fuel before starting operations? [29 CFR 1910.254(d)(4)] | Y N N/A DK |
| 30. | Is it determined that proper switching equipment for shutting down the machine is provided? [29 CFR 1910.254(d)(5)] | Y N N/A DK |
| 31. | Are the manufacturer's printed rules and instructions covering operation of the equipment supplied strictly followed? [29 CFR 1910.254(d)(6)] | Y N N/A DK |
| 32.☹ | When not in use for 1 hour or more, are electrodes removed from the holders, the holders safely placed so they cannot make contact with people, conductive objects, fuel or compressed gas tanks and the machines disconnected from the power source? [29 CFR 1910.254(d)(7), 1926.351(d)(1) & (d)(3) and N.J.A.C. 5:70-3.2{BOCA F-2206.3}] | Y N N/A DK |
| 33. | Are electrode cables free from splices within 10 feet from holders? [29 CFR 1910.254(d)(8) and 1926.351(b)(1)] | Y N N/A DK |

Note: The General Industry standard 1910.254(d)(9)(iii) and the Construction standard 1926.351(b)(1) permit joining lengths of cable by standard insulated connectors specifically designed for that purpose. The Construction standard, however, also permits splices which are insulated as well as the original cable.

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| 34. | Is the operator required to report any equipment defects or safety hazards to the teacher and to discontinue use until its safety has been assured? [29 CFR 1910.254(d)(9)(i) and 1926.351(d)(4)] | Y N N/A DK |
| 35. | Are arc-welding machines repaired only by qualified personnel? [29 CFR 1910.254(d)(9)(i)] | Y N N/A DK |
| 36. | If arc-welding machines become wet, are they thoroughly dried and tested before use? [29 CFR 1910.254(d)(9)(ii)] | Y N N/A DK |
| 37. | Is dipping of hot electrode holders into water prohibited? [29 CFR 1926.351(d)(2)] | Y N N/A DK |
| 38. | Are cables with damaged insulation or exposed bare conductors replaced? [29 CFR 1910.254(d)(9)(iii)] | Y N N/A DK |

Note: The Construction standard 1926.351(b)(4) permits repair of cables with rubber and friction tape or other equivalent means as long as the areas are protected by sufficient insulation.

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| 39. | When metal-arc welding using inert gas, are chlorinated solvents kept at least 200 feet away or shielded from the exposed arc? [29 CFR 1926.353(d)] | Y N N/A DK |
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Note: Inert-gas metal-arc welding produces 5 to 30 times more ultra-violet radiation than shielded meta-arc welding. Extra precautions should be used to protect direct skin and eye exposure as well.

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