Texas Department of Insurance

Welding, Cutting, and Brazing Checklist

For General Industry and Construction

Provided by

Division of Workers' Compensation

HS03-004A(2-05)

Welding, Cutting, and Brazing

Introduction

This checklist has been compiled to aid those employers and employees in general industry and construction who seek to comply voluntarily with the Occupational Safety and Health Administration's (OSHA) standards for welding, cutting, and brazing.

The questions that make up this checklist are based on 29 Code of Federal Regulations (CFR) Part 1910, Subpart Q and 29 CFR Part 1926, Subpart J. These standards can be accessed on OSHA's web site at www.osha.gov.

Employers in the construction industry should take care to review the general industry portion of this checklist, as some items apply to all worksites.

The checklist is designed so that a negative answer to a question indicates an area of safety concern. However, it should be emphasized that the checklist is only a guide. Compliance with it does not necessarily assure full compliance with all OSHA standards.

The most frequently cited standards have been included to assist in identifying standards violations at a workplace and should serve as a valuable tool for self-inspection.

Most Frequently Cited Welding Standards in General Industry

1910.253(b)(4)(i)
Oxygen cylinders shall not be stored near highly combustible material (especially oil and grease); near reserve stocks of carbide, acetylene, or other fuel gas cylinders; near any other substance likely to cause or accelerate fire; or in an acetylene generator compartment.

1910.253(b)(4)(iii)
Oxygen cylinders in storage shall be separated from fuel gas cylinders or combustible materials (especially oil and grease) a minimum of 20 feet or by a noncombustible barrier at least (5) feet high having a fire-resistance rating of one-half hour.

1910.253(b)(2)(ii)
Inside buildings, cylinders shall be stored in a well protected, well ventilated, dry location at least 20 feet from highly combustible materials such as oil or excelsior. Cylinders shall be stored in definitely assigned places away from elevators, stairs, or gangways. Assigned storage spaces shall be located where cylinders will not be knocked over or damaged by passing or flying objects, or subject to tampering by unauthorized persons. Cylinders shall not be kept in unventilated enclosures such as lockers or cupboards.

1910.253(b)(2(iii)
Empty cylinders shall have their valves closed.

1910.253(b)(2)(iv)
Valve protection caps, where cylinders are designed to accept a cap, shall always be in place, and hand-tight, except where cylinders are in use or connected for use.

Most Frequently Cited Welding Standards in Construction

1926.350(a)(9)
Compressed gas cylinders shall be secured in an upright position at all times except, if necessary, for short periods of time while cylinders are actually being hoisted or carried.

1926.350(a)(1)
Valve protection caps shall be in place and secured.

1926.350(h)
Oxygen and fuel gas pressure regulators, including their related gauges, shall be in proper working order while in use.

1926.351(b)(4)
Cables in need of repair shall not be used. When a cable, other than the cable lead referred to in subparagraph (2) of this paragraph, becomes worn to the extent of exposing bare conductors, the portion thus exposed shall be protected by means of rubber and friction tape or other equivalent cables [Note:Subparagraph (2) of this paragraph (2) states that cables with standard insulated connectors or with splices whose insulating quality is equal to that of the cable are permitted.]

06/03

Welding, Cutting, and Brazing Checklist

(A negative answer to any question indicates an area of safety or health concern.)

Company name:_____
Jobsite address: _____
Supervisor: _____
Date/Time: _____
Inspector: _____

General Industry - CFR 1910

Installation and Operation of Oxygen-Fuel Gas Systems for Welding and Cutting - 1910.253

Yes No N/A Date corrected

__ __ ___ _____ 1. Is acetylene generated, piped, or utilized at a pressure of 30 p.s.i. absolute pressure or less? .253(a)(2)

__ __ ___ _____ 2. Have personnel in charge of the oxygen or fuel gas supply equipment been instructed and judged competent before being left in charge? .253(a)(4)

__ __ ___ _____ 3. Is the gas content of compressed gas cylinders marked with either the chemical or the trade name of the gas? .253(b)(1)(ii) (Also see ANSI Z48.1-1954)

__ __ ___ _____ 4. Are cylinders stored away from radiators and other sources of heat? .253(b)(2)(i)

__ __ ___ _____ 5. Are cylinders that are stored inside kept in a well-ventilated, dry location at least 20 feet from highly combustible material? .253(b)(2)(ii)

__ __ ___ _____ 6. Are cylinders stored in assigned places away from elevators, stairs, or gangways and where they will not be knocked over or damaged? .253(b)(2)(ii)

__ __ ___ _____ 7. Are the valves of empty cylinders kept closed? .253(b)(2)(iii)

__ __ ___ _____ 8. Are valve protection caps in place and hand-tight except when in use or connected for use? .253(b)(2)(iv)

__ __ ___ _____ 9. Are fuel gas cylinders except those in use or attached for use, which are stored inside a building, limited to a total gas capacity of 2,000 cubic feet or 300 pounds of liquefied petroleum gas? .253(b)(3)(i)

__ __ ___ _____ 10. Are acetylene cylinders stored valve end up? .253(b)(3)(ii)

__ __ ___ _____ 11. If oxygen cylinders are stored in outside generator houses, are they separated from the generator or carbide storage rooms by a gastight, noncombustible partition having a fire-resistance rating of at least one hour? .253(b)(4)(ii)

__ __ ___ _____ 12. Are stored oxygen cylinders separated from fuel gas cylinders or combustible material by a minimum of 20 feet, or by a noncombustible barrier at least five feet high with a fire-resistance rating of at least one-half hour? .253(b)(4)(iii)

Yes No N/A Date corrected

__ __ ___ _____ 13. Are cylinders, cylinder valves, couplings, regulators, hose, and apparatus kept free from oily or greasy substances? .253(b)(5)(i)

__ __ ___ _____ 14. Do you insure that cylinders are not dropped, struck, or permitted to strike each other violently? .253(b)(5)(ii)(B)

__ __ ___ _____ 15. Do you insure that valve-protection caps are not used for lifting cylinders from one vertical position to another? .253(b)(5)(ii)(C)

__ __ ___ _____ 16. Do you insure that cylinders which do not have fixed hand wheels, have keys, handles, or non-adjustable wrenches on the valve stems while the cylinders are in service? 253(b)(5)(ii)(E) (NOTE: In multiple cylinder installations only one key or handle is required for each manifold.)

__ __ ___ _____ 17. Are cylinder valves closed before moving cylinder and when work is finished? 253(b)(5)(ii) (F) & (G)

__ __ ___ _____ 18. Are cylinders stored in assigned places away from elevators, stairs, or gangways and where they will not be knocked over or damaged? .253(b)(2)(ii)

__ __ ___ _____ 19. Are the valves of empty cylinders kept closed? .253(b)(2)(iii)

__ __ ___ _____ 20. Are valve protection caps in place and hand-tight except when in use or connected for use? .253(b)(2)(iv)

__ __ ___ _____ 21. Are fuel gas cylinders except those in use or attached for use, which are stored inside a building, limited to a total gas capacity of 2,000 cubic feet or 300 pounds of liquefied petro- leum gas? .253(b)(3)(i)

__ __ ___ _____ 22. Are acetylene cylinders stored valve end up? .253(b)(3)(ii)

__ __ ___ _____ 23. Are warning signs posted which prohibit open flame or other sources of ignition near cylinders with leaking fuse plugs or other leaking safety devices, and are the cylinders tagged? .253(b)(5)(iii)(G)

Manifold Systems - 1910.253

__ __ ___ _____ 24. Do you insure that oxygen manifolds are not located in an acetylene generator room? .253(c)(2)(ii)

__ __ ___ _____ 25. Do you insure that portable outlet headers are used indoors only for temporary service where conditions preclude a direct supply from outlets located on the service piping system? .253(c)(4)(i)

__ __ ___ _____ 26. Is each outlet on the service piping which supplies a portable outlet header equipped with a readily accessible shutoff valve? .253(c)(4)(ii)

__ __ ___ _____ 27. Are master shutoff valves for both oxygen and fuel-gas provided at the entry end of the port- able outlet header? .253(c)(4)(iv)

__ __ ___ _____ 28. Are portable outlet headers provided with frames to support the equipment securely in the correct operating position? .253(c)(4)(viii)

__ __ ___ _____ 29. When acetylene cylinders are coupled in a manifold, are flash arresters installed between each cylinder and the coupler block? .253(c)(5)(iii)

__ __ ___ _____ 30. In service piping systems, are distribution lines installed and maintained in a safe operating condition? .253(d)(3)(i)

__ __ ___ _____ 31. Are emergency gas cocks or valves provided for all buildings? .253(d)(3)(v)

General Requirements - 1910.253

Yes No N/A Date corrected

__ __ ___ _____ 32. Are underground pipe and tubing and outdoor ferrous pipe and tubing protected against corrosion? .253(d)(4)(i)

__ __ ___ _____ 33. Is flashback protection provided by an approved device that will prevent flame from passing into the fuel gas systems? .253(e)(3)(ii)(C)(3)

__ __ ___ _____ 34. Are hoses showing defects repaired or replaced? .253(e)(5)(v)

__ __ ___ _____ 35. Are pressure-reducing regulators used only for the gas and pressures for which they are intended? .253(e)(6)(i)

__ __ ___ _____ 36. Is the repair of regulators performed by properly instructed, skilled mechanics? .253(e)(6)(ii)

__ __ ___ _____ 37. Are gauges on oxygen regulators marked "USE NO OIL"? .253(e)(6)(iii)

__ __ ___ _____ 38. Are union nuts and connections on regulators inspected before use to detect faulty seats? .253(e)(6)(iv)

Acetylene Generators - 1910.253

Yes No N/A Date corrected

__ __ ___ _____ 39. Is ample space provided around the generator for operation and maintenance? .253(f)(3)

__ __ ___ _____ 40. Are generators placed where water will not freeze, and is the use of sodium chloride to prevent freezing prohibited? .253(f)(4)(i)(B)

__ __ ___ _____ 41. Are portable generators located at a safe distance from the welding position? .253(f)(5)(ii)(E)

__ __ ___ _____ 42. Are the walls, floors, and roofs of outside generator houses constructed of non-combustible materials? .253(f)(6)(i)(B)

__ __ ___ _____ 43. Are exit doors readily accessible in case of emergency? .253(f)(6)(i)(D)

__ __ ___ _____ 44. Are generators installed inside buildings enclosed in a separate room? .253(f)(6)(i)(G)

__ __ ___ _____ 45. Are the walls, partitions, floors, and ceilings of inside generator rooms of non-combustible construction with a fire-resistance rating of at least one hour? .253(f)(6)(i)(H)

__ __ ___ _____ 46. Are generator rooms or buildings well ventilated with vents located at floor and ceiling levels? .253(f)(6)(ii)

__ __ ___ _____ 47. Do generator rooms or buildings have natural light during daylight hours or artificial light restricted to electric lamps installed in a fixed position? .253(f)(6)(iv)(A)

__ __ ___ _____ 48. Are operating instructions posted in a conspicuous place near the generator or available for ready reference? .253(f)(7)(i)(A)

__ __ ___ _____ 49. Is the generator room electrically wired in accordance with 1910.307 (hazardous locations)?

__ __ ___ _____ 50. Do you insure that the water-carbide residue mixture drained from the generator is not discharged into sewer pipes or stored in areas near open flames? .253(f)(7)(i)(D)

__ __ ___ _____ 51. Do you insure that calcium carbide is kept in metal packages strong enough to prevent rupture? .253(g)(1)(i)

__ __ ___ _____ 52. Are the packages marked "Calcium Carbide -Dangerous If Not Kept Dry"? .253(g)(1)(ii)

__ __ ___ _____ 53. Are carbide containers that are stored outside periodically examined for conditions that could affect water or air tightness? .253(g)(3)(ii)

Application, Installation and Operation of Arc Welding and Cutting Equipment - 1910.254

Yes No N/A Date corrected

__ __ ___ _____ 54. Have employees who are designated to operate arc welding equipment been properly instructed and qualified? .254(a)(3)

__ __ ___ _____ 55. Are open circuit (no load) voltages of arc welding and cutting machines as low as possible, consistent with satisfactory welding? .254(b)(3)

__ __ ___ _____ 56. When open circuit voltages must be higher, are means provided to prevent the operator from making accidental contact with the higher voltages? .254(b)(3)(iii)

__ __ ___ _____ 57. Is control apparatus enclosed on all types of arc welding machines? .254(b)(4)(ii)

__ __ ___ _____ 58. Are terminals for welding leads protected from accidental electrical contact by personnel or metal objects? .254(b)(4)(iv)

__ __ ___ _____ 59. Do you insure that no connections for portable control devices, such as push buttons carried by the operator, are connected to an a.c. circuit of higher than 120 volts? .254(b)(4)(v)

__ __ ___ _____ 60. Is the frame or case of the welding machine effectively grounded and the grounding checked? .254(c)(2)(i) and (d)(3)

__ __ ___ _____ 61. Is a separate disconnecting switch or controller provided at or near each welding machine? .254(c)(3)(i)

__ __ ___ _____ 62. Are electrode holders placed so that they cannot make electrical contact with persons, conducting objects, fuel, or compressed gas tanks? .254(d)(7)

__ __ ___ _____ 63. Has the operator been instructed to report any equipment defect or safety hazard to his supervisor, and is use of the equipment discontinued until repaired by qualified personnel? .254(d)(9)(i)

__ __ ___ _____ 64. Are work and electrode lead cables frequently inspected for wear and damage, and are cables with damaged insulation or exposed bare conductors replaced? .254(d)(9)(iii)

Installation and Operation of Resistance Welding Equipment - 1910.255

Yes No N/A Date corrected

__ __ ___ _____ 65. Have personnel who are designated to operate resistance welding equipment been properly instructed and judged competent to operate such equipment? .255(a)(3)

__ __ ___ _____ 66. Are all doors and access panels of all resistance welding machines and control panels kept locked and interlocked? .255(b)(3)

__ __ ___ _____ 67. Has a shield guard of safety glass or suitable fire-resistant plastic been installed at the point of operation? .255(b)(5)

__ __ ___ _____ 68. Are foot switches guarded to prevent accidental operation of the machine? .255(b)(6)

__ __ ___ _____ 69. Are two or more safety emergency stop buttons provided on all special, multispot welding machines, including 2-post and 4-post weld presses? .255(b)(7)

__ __ ___ _____ 70. Are flash welding machines equipped with hoods to control flying flash? .255(d)(1)

__ __ ___ _____ 71. Are periodic inspections of the machines made by qualified maintenance personnel and are records of the inspections maintained? .255(e)

Fire Prevention and Protection - 1910.252

Yes No N/A Date corrected

__ __ ___ _____ 72. Is suitable fire extinguishing equipment maintained in a state of readiness for instant use? .252(a)(2)(ii)

__ __ ___ _____ 73. Are fire watches on duty whenever welding or cutting is performed in locations where a major fire might develop? (See conditions listed) .252(a)(2)(iii)(A)

__ __ ___ _____ 74. Before cutting or welding is permitted, is the area inspected by the individual responsible for authorized cutting and welding operations? .252(a)(2)(iv)

__ __ ___ _____ 75. Where practicable, are all combustibles relocated at least 35 feet from the worksite? .252(a)(2)(vii)

__ __ ___ _____ 76. Does management recognize its responsibility for the safe usage of cutting and welding equipment on its property? .252(a)(2)(xiii)

__ __ ___ _____ 77. Do supervisors recognize their responsibilities in the safe management of welding and cutting operations as defined in .252(a)(2)(xiv)(A)?

Protection of Personnel - 1910.252

Yes No N/A Date corrected

__ __ ___ _____ 78. Are welders or helpers who are working on platforms, scaffolds, or runways protected against falling by railings, safety belts, or lifelines? .252(b)(1)(i)

(NOTE: Open sided floors and platforms four feet or more above floor or ground level require standard guardrails and intermediate rails. Toe boards are required when persons or moving machinery are likely to pass beneath, or there is equipment with which falling materials could create a hazard. Runways four feet above floor or ground require standard guardrails and intermediate rails on all open sides. Toe boards are required when tools or parts are used on the runway. Scaffolding more than 10 feet above ground or floor requires guardrails and toe boards on all open sides and ends; if this requirement cannot be met, safety belts attached to lifelines or lanyards shall be used.)

Yes No N/A Date corrected

__ __ ___ _____ 79. Is welding cable and other equipment kept clear of passageways, ladders, and stairways? .252(b)(1)(ii)

__ __ ___ _____ 80. Are helmets, hand shields and goggles worn during all arc welding or cutting operations? .252(b)(2)(i)(A)

__ __ ___ _____ 81. Has a hazard assessment been performed to determine if hazards are present or likely to be present? .132(d)(1)

__ __ ___ _____ 82. Are employees who are exposed to the hazards created by welding, cutting, or brazing operations protected by personal protective equipment as required by 1910.132 and 1910.252(b)(3)?

__ __ ___ _____ 83. When welding or cutting is being performed in any confined space, are gas cylinders and welding machines left outside? .252(b)(4)(iii)

__ __ ___ _____ 84. Before operations are started, is heavy, portable, wheel-mounted equipment securely blocked to prevent accidental movement? .252(b)(4)(iii)

__ __ ___ _____ 85. Where a welder must enter a confined space through a manhole or other small opening, have means been provided for his quick removal in case of emergency? .252(b)(4)(iv)

Health Protection and Ventilation - 1910.252

Yes No N/A Date corrected

__ __ ___ _____ 86. Are ventilation or respiratory protective devices provided where necessary, and do they meet the equivalent requirements of .252(c)(4)(i), (ii), (iii), (iv) and (v)?

__ __ ___ _____ 87. Are employees trained to render first aid, and is first aid equipment available at all times? .252(c)(13)

__ __ ___ _____ 88. Are airline or self-contained breathing apparatus used in confined areas that are immediately hazardous to life? .252(c)(4)(ii)&(iii)

__ __ ___ _____ 89. Do local exhaust hoods or booths provide airflow of 100 linear feet per minute? .252(c)(3)(i)

__ __ ___ _____ 90. Is mechanical ventilation at 2,000 cubic feet of air per minute per welder provided when welding or cutting on metals other than above described; or when there is less than 10,000 cubic feet of space per welder or where the ceiling height is less than 16 feet; in confined spaces, or where structural barriers (such as partitions or balconies) significantly obstruct cross ventilation? 1910.252(c)(2)(i)(A) through (C).

(NOTE: Mechanical ventilation is necessary when an exhaust hood or fixed booth provide for a rate of airflow sufficient to maintain a velocity away from the welder or not less than 100 linear feet per minute.)

Additional Questions Relating to Construction - CFR 1926

Transporting, Moving and Storing Compressed Gas Cylinders - 1926.350

Yes No N/A Date corrected

__ __ ___ _____ 91. Are valve protection caps in place and secured? 1926.350(a)(1)

__ __ ___ _____ 92. When transported by powered vehicles, are cylinders secured in a vertical position? .350(a)(4)

__ __ ___ _____ 93. Are employees instructed not to use valve protection caps to lift cylinders from one vertical position to another? .350(a)(5)

__ __ ___ _____ 94. Unless cylinders are firmly secured on a special carrier, have regulators been removed and are valve protection caps in place before moving? .350(a)(6)

__ __ ___ _____ 95. Is a cylinder truck, chain, or other steadying device used to keep cylinders from being knocked over while in use? .350(a)(7)

__ __ ___ _____ 96. Are cylinder valves closed when work is finished, when cylinders are empty or when cylinders are being moved? .350(a)(8)

__ __ ___ _____ 97. Are cylinders secured in an upright position at all times except when hoisted or carried? .350(a)(9)

Placing Cylinders - 1926.350

Yes No N/A Date corrected

__ __ ___ _____ 98. Are cylinders kept at a safe distance from welding operations, or are fire resistant shields provided? .350(b)(1)

__ __ ___ _____ 99. Are cylinders placed where they will not become part of an electric circuit? .350(b)(2)

__ __ ___ _____100. Do you insure that cylinders containing oxygen, acetylene, or other fuel gas are not taken into confined spaces? .350(b)(4)

Treatment of Cylinders - 1926.350

Yes No N/A Date corrected

__ __ ___ _____101. Have employees been instructed not to use cylinders, whether full or empty, as rollers or supports? .350(c)(1)

Use of Fuel Gas - 1926.350

Yes No N/A Date corrected

__ __ ___ _____102. Have employees been instructed in the safe use of fuel gas as outlined in .350(d)(1) through (6)?

Fuel Gas and Oxygen Manifolds - 1926.350

Yes No N/A Date corrected

__ __ ___ _____103. Do fuel gas and oxygen manifolds bear the name of the substance they contain in letters at least one-inch high, either painted on the manifolds or on a sign permanently attached to them? .350(e)(1)

__ __ ___ _____104. Are the manifolds placed in safe, well-ventilated, and accessible locations and not within enclosed spaces? .350(e)(2)

Hose - 1926.350

Yes No N/A Date corrected

__ __ ___ _____105. Do you ensure that oxygen and fuel gas hoses are not interchangeable and that a single hose having more than one gas passage shall not be used? .350(f)(1)

__ __ ___ _____106. Is all hose in use inspected at the beginning of each work shift, and is defective hose removed from service? .350(f)(3)

__ __ ___ _____107. Are hose couplings of the type that cannot be unlocked or disconnected without a rotary motion? .350(f)(5)

__ __ ___ _____108. Are boxes that are used for the storage of gas hose ventilated? .350(f)(6)

Torches - 1926.350

Yes No N/A Date corrected

__ __ ___ _____109. Are torches in use inspected at the beginning of each shift for leaking shutoff valves, hose couplings, and tip connections? .350(g)(2)

__ __ ___ _____110. Do you insure that torches are lighted by friction lighters or other approved devices, and not by matches or from hot work? .350(g)(3)

Regulators and Gauges - 1926.350

Yes No N/A Date corrected

__ __ ___ _____111. Are oxygen and fuel gas regulators and their gauges in proper working order? .350(h)

Oil and Grease Hazards - 1926.350

Yes No N/A Date corrected

__ __ ___ _____112. Do you insure that cylinders, cylinder caps, valves, couplings, regulators, hose and apparatus are kept free from oil or greasy substances, and are not handled with oily hands or gloves? .350(i)

Welding Cables and Connectors - 1926.351

Yes No N/A Date corrected

__ __ ___ _____113. Do you use only cable that is free from repair or splices for a minimum of 10 feet from the cable end to which the electrode holder is connected? .351(b)(2)
(NOTE: Cables with standard insulated connectors or with splices whose insulating quality is equal to that of the cable are permitted.)

__ __ ___ _____114. Do you insure that cables in need of repair are not used? .351(b)(4)

Operating Instructions - 1926.351

Yes No N/A Date corrected

__ __ ___ _____115. Have employees been instructed in the safe means of arc welding and cutting as prescribed in .351(d)(1) through (4)?

__ __ ___ _____116. Are arc welding and cutting operations shielded by noncombustible or flameproof screens? .351(e)

Fire Prevention - 1926.352

Yes No N/A Date corrected

__ __ ___ _____117. Have employees been instructed that objects to be welded, cut, or heated shall be moved to a designated location, or that movable fire hazards shall be taken to a safe place or otherwise protected? .352(a)

__ __ ___ _____118. Is suitable fire extinguishing equipment, ready for instant use, available in the work area? .352(d)

Ventilation and Protection - 1926.353

Yes No N/A Date corrected

__ __ ___ _____119. Are employees protected by air line respirators in confined spaces when sufficient ventilation cannot be obtained without blocking the means of access? .353(b)(2)

__ __ ___ _____120. Do welding, cutting, and heating operations using toxic substances meet the requirements of .353(a) and (c)?

__ __ ___ _____121. Are welders and other employees who are exposed to radiation suitably protected? 353(d)(1)(iii)

__ __ ___ _____122. Are employees who are performing any type of welding, cutting, or heating protected by suitable eye protective equipment? .353(e)(2)

Preservative Coatings - 1926.354

Yes No N/A Date corrected

__ __ ___ _____123. If the flammability of a preservative coating is unknown, is a test made by a competent person to determine its flammability? .354(a)

__ __ ___ _____124. Are employees protected against toxic preservative coatings as prescribed in .354(c)(1) and (2)?

The Texas Department of Insurance,
Division of Workers' Compensation (TDI/DWC)
E-mail resourcecenter@tdi.state.tx.us
or call 1-800-687-7080 for more information.

Safety Violations Hotline
1-800-452-9595
safetyhotline@tdi.state.tx.us

VENTILATION REQUIREMENTS FOR WELDING AND CUTTING

Metal Compound	Requirements Confined Space	Requirements Enclosed Space	Requirements Open Air
All Metals	Mechanical Ventilation of exhaust hood	N/A	N/A
Zinc-bearing base or filler metals; cadmium-bearing filler materials; chromium-bearing metals	N/A	Mechanical ventilation or exhaust hood	Combination particulate and vapor and gas removing type respirator if tests indicate the need
Metals containing lead or coated with lead-bearing materials; cadmium-bearing or cadmium-coated base materials; mercury-bearing metals	N/A	*Exhaust hood or airline respirator	Combination particulate and vapor and gas removing type respirator if tests indicate the need
Beryllium containing base or filler metals	N/A	*Exhaust hood or airline respirator	Airline respirator if tests indicate the need

*Freely movable hood placed by the welder as near as practicable to the work being welded, with a rate of airflow sufficient to maintain a velocity in the direction of the hood of 100 linear feet per minute in the zone of welding when the hood is at its most remote distance from the point of welding.