



	<b>Berry Bros. General Contractors, Inc.</b> <b>Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental</b> <b>Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 1 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
Title: <b>Hot Work / Welding Program</b>		

CONTENTS	SUBPART
<b>PURPOSE</b>	<b>A</b>
<b>RESPONSIBILITIES</b>	<b>B</b>
<b>HAZARDS</b>	<b>C</b>
<b>SIGNS AND MARKINGS</b>	<b>D</b>
<b>DEFINITIONS</b>	<b>E</b>
<b>FIRE PREVENTION AND PROTECTION</b>	<b>F</b>
<b>PROHIBITED HOT WORK AREAS</b>	<b>G</b>
<b>COMBUSTIBLE MATERIAL</b>	<b>H</b>
<b>FIRE EXTINGUISHERS</b>	<b>I</b>
<b>GUIDELINES FOR HEALTH PROTECTION</b>	<b>J</b>
<b>CAUTION</b>	<b>K</b>
<b>MAINTENANCE OF EQUIPMENT</b>	<b>L</b>
<b>TRAINING</b>	<b>M</b>
<b>GENERAL WELDING AND CUTTING SAFETY RULES</b>	<b>N</b>

## **SUBPART A - PURPOSE**

Welding and Hot Work, such as brazing or grinding present a significant opportunity for fire and injury. Any company employee and/or contractors must apply all precautions in this program prior to commencing any welding and/or hot work. Reference: OSHA 29 CFR 1910.252.

The purpose of this plan is to:

- Create awareness among our workforce of the potential hazards of hot work.
- Provide a consistent format for training employees on the proper procedures to be used when performing hot work operations.
- Minimize the possibility of injury or harm to our employees who engage in hot work operations.
- Demonstrate our company's compliance with all requirements regarding hot work operations.

**It should be noted that if Berry Bros. General Contractors, Inc. is under direct contract with a Client to perform Hot Work, the Client's Hot Work Procedures will**



	<b>Berry Bros. General Contractors, Inc. Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 2 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
Title:	<b>Hot Work / Welding Program</b>	

take precedence if they have them. If not, Berry Bros. is to be contacted before any work is to be performed to verify if our employee is qualified to perform a HOT WORK inspection and issue a permit.

In addition, if Berry Bros. General Contractors, Inc. is a sub-contractor on a site working for another contractor, Berry Bros. General Contractors, Inc. will follow the contractors' and Clients' procedures if they have any. If not, Berry Bros. is to be contacted before any work is to be performed to verify if our employee is qualified to perform a HOT WORK inspection and issue a permit for our work only!

**NOTE:** Under no circumstances will Hot Work be performed when there is a risk of combustible or flammable hazards present in the immediate work area.


#### Guidance:

1. Where practicable, all combustibles shall be relocated at least 35 feet from the work site.
2. Where relocation is impracticable, combustibles shall be protected with flameproof covers or otherwise shielded with metal or asbestos guards or curtains.
3. Move the welding and cutting to safe area with no combustible or flammable hazards
4. If cannot do this then permit condition exist and additional barriers are needed to do hot work

## **SUBPART B - RESPONSIBILITIES**

### **Management**

1. Provide training for all employees whose task includes heat, spark or flame producing operations such as welding, brazing, or grinding.
2. Develop and monitor effective hot work procedures.
3. Provide safe equipment for hot work
4. Provide proper and effective PPE for all hot work.
5. Provide that if the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed.
6. If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat sparks and slag and to protect the immovable fire hazards.
7. If the above cannot be put in place, welding and/or cutting shall not be performed.

	<b>Berry Bros. General Contractors, Inc. Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 3 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
<b>Title: Hot Work / Welding Program</b>		

## Supervisors

Before cutting or welding is permitted the Supervisor or Superintendent shall inspect the area. Once the inspection is complete and a Hot Work permit is granted by the Client or the Berry Bros. Supervisor / Superintendent, the HOT WORK operations may commence.

Precautions that are to be taken shall be in the form of a written permit. (JSEA, Hot Work Permit)

- Monitor all hot work operations
- Ensure all hot work equipment and PPE are in safe working order
- Allow only trained and authorized employees to conduct hot work
- Ensure permits are used for all hot work outside authorized areas


Once all Hot Work has been completed, the employee is to return the Hot Work Permit to the either the Client or the Berry Bros. Supervisor for final inspection and sign off of the work.

## Employees (CUTTERS AND WELDERS)

Cutters, Welders and their Supervisors must be suitably trained in the safe operations of their equipment and the safe use of the process. If the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed. If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat sparks and slag and to protect the immovable fire hazards. One such guard is the use of a fire retardant tarp. Such tarps should be red in color, have grommets, be silicone-coated, and labeled or tagged as fire retardant. If the aforementioned conditions cannot be followed, the welding and cutting project shall not be performed.

1. Follow all hot work procedures
2. Properly use appropriate hot work PPE
3. Inspect all hot work equipment before use
4. Report any equipment problems
5. Not use damaged hot work equipment
6. Cutters, welders and their supervisors must be suitably trained in the safe operation of their equipment and the safe use of the process.

## Fire Watches

	<b>Berry Bros. General Contractors, Inc.</b> <b>Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental</b> <b>Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 4 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
<b>Title: Hot Work / Welding Program</b>		

Position fire watches IF welding or cutting is performed in locations where other than a minor fire might develop, OR if any of the following conditions exist:

1. Appreciable combustible material, in building construction or contents, is closer than 35 feet (10.7 m) to the point of operation.
2. Appreciable combustibles are more than 35 feet (10.7 m) away, but are easily ignited by sparks.
3. Wall or floor openings within a 35-foot (10.7 m) radius expose combustible material in adjacent areas, including concealed spaces in walls or floors.
4. Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs, and are likely to be ignited by conduction or radiation.

Verify that fire watchers have fire extinguishing equipment readily available, are trained in its use, AND that they:

- Are familiar with facilities for sounding an alarm in the event of a fire.
- Watch for fires in all exposed areas.
- Try to extinguish fires ONLY when obviously within the capacity of the equipment available; OR otherwise sound the alarm.


**Note:** It is Berry Bros. policy to maintain a fire watch for at least a half hour after completing welding or cutting operations in order to detect and extinguish possible smoldering fires.

## **SUBPART C - HAZARDS**

In all operations, the common hazards associated with welding operations shall be addressed, such as:

- Damage to eyes and skin from continued or repeated exposure to ultraviolet and infrared rays.
- Closed containers that once held flammables or combustibles.
- Toxic gases, fumes, and dust, which may be released during welding and cutting operations.
- Metal splatter and electric shock.
- Explosion hazards due to improper ventilation.

### **Special Hazard Occupancies**

	<b>Berry Bros. General Contractors, Inc.</b> <b>Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental</b> <b>Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 5 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
<b>Title: Hot Work / Welding Program</b>		

Any area containing the following in which hot work is to take place:

- Flammable Liquids,
- Dust Accumulation,
- Gases, Plastics,
- Rubber and Paper Products

### **Responsibilities**

1. Workers in charge of oxygen or fuel-gas supply equipment (including distribution piping systems and generators) must be instructed and judged competent for such work.
2. Workman assigned to operate arc-welding equipment must be properly instructed and qualified to operate such equipment
3. Workmen assigned to operate and/or maintain this equipment must be familiar with this section (29CFR 1910.254) and with (29CFR 1910.252(a) (b) &(c)).
4. If gas shielded arc welding is done, workers must be familiar with the American Welding Society Standard (A6-1-1966).
5. Operators of this equipment shall report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Only a qualified person shall make repairs.

### **SUBPART D - SIGNS AND MARKINGS**


When necessary, signs and markings must be used to identify hazardous conditions relating to hot work operations. The use of signs and tags as a means to prevent accidental injury or illness to employees who are exposed to hazardous or potentially hazardous conditions, equipment, or operations as they relate to hot work operations.

### **SUBPART E - DEFINITIONS**

**Welding / Hot Work Procedures:** Any activity, which results in sparks, fire, molten slag, or hot material, which has the potential to cause fires or explosions.

**Examples of Hot Work:** Cutting, Brazing, Soldering, Torch Applied Roofing, Grinding, and Welding.

### **SUBPART F - FIRE PREVENTION AND PROTECTION**

	<b>Berry Bros. General Contractors, Inc.</b> <b>Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental</b> <b>Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 6 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
<b>Title: Hot Work / Welding Program</b>		

## Fire Hazards

Permit cutting or welding ONLY in areas that are, OR have been made fire safe.

IF work cannot be moved practically, as in most construction work, THEN make the area safe by removing combustibles, OR by protecting combustibles from ignition sources.

IF the object to be welded or cut cannot be readily moved, THEN take all movable fire hazards in the vicinity to a safe place.

IF the object to be welded or cut cannot be moved, AND if all the fire hazards cannot be removed, THEN:

- Use guards/fire retardant tarps to confine the heat, sparks, and slag
  - Tarps should be red in color
  - Have grommets
  - Be silicone coated
  - Labeled or tagged as fire retardant
- Protect the immovable fire hazards

IF the previous actions cannot be followed, then do not perform welding and cutting operations.

## SUBPART G - PROHIBITED HOT WORK AREAS

Cutting or welding shall not be permitted in the following situations:

1. In areas not authorized by management.
2. In sprinkled buildings while such protection is impaired.
3. In the presence of potentially explosive atmospheres, e.g. a flammable.
4. In areas near the storage of large quantities of exposed, readily ignitable materials.
5. In areas where there is dust accumulation of greater than 1/16 inch within 35 feet of the area where welding/hot work will be conducted.
6. *Confirm that equipment which could contain Flammable Materials is gas free and isolated in line with the Safe Isolation - Lock Out Tag Out Manual Section.*



	<b>Berry Bros. General Contractors, Inc. Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 7 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
Title:	<b>Hot Work / Welding Program</b>	

*All dust accumulation should be cleaned up following the housekeeping program of the facility before welding/hot works are permitted.*

## **SUBPART H - COMBUSTIBLE MATERIAL**

IF there are floor openings or cracks in the flooring that cannot be closed, THEN take precautions so that combustible materials on the floor below will NOT be exposed to sparks that might drop through the floor.

Note: Observe the same precautions with regard to:

- Cracks or holes in walls
- Open doorways
- Open or broken windows

## **SUBPART I - FIRE EXTINGUISHERS**

Maintain suitable fire extinguishing equipment in a state of readiness for instant use. Such equipment may consist of:

- Pails of water.
- Buckets of sand.
- Hose or portable extinguishers, depending on the nature and quantity of the exposed combustible material.

## **SUBPART J - GUIDELINES FOR HEALTH PROTECTION**

### **Welding Screens**

IF welding must be performed in a space entirely screened on all sides, THEN arrange the screens so that no serious restriction of ventilation exists.

Mount the screens so that they are about 2 feet (0.61 m) above the floor, UNLESS the work is performed at so low a level that the screen must be extended nearer to the floor to protect nearby workers from the glare of welding.

### **Maximum Allowable Concentration**

Provide AND arrange local exhaust or general ventilating systems to keep the amount of toxic fumes, gases, or dusts below the maximum allowable concentration as specified in 29 CFR 1910.1000.



	<b>Berry Bros. General Contractors, Inc. Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 8 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
Title:	<b>Hot Work / Welding Program</b>	

### Precautionary Labels

Verify that all filler metals and fusible granular materials carry the following notice, as a minimum, on tags, boxes, or other containers:

### **SUBPART K - CAUTION**

Welding, cutting, or brazing on some metals such as zinc, cadmium, mercury, beryllium or other exotic metals and paint can produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. Use adequate ventilation. See AN

SI Z49.1 - 1967 Safety in Welding and Cutting published by the American Welding Society.

Verify that brazing (welding) filler metals containing cadmium in significant amounts carry the following notice on tags, boxes, or other containers:

**WARNING  
CONTAINS CADMIUM - POISONOUS FUMES MAY BE FORMED ON  
HEATING**

Do not breathe fumes.

Use only with adequate ventilation such as fume collectors, exhaust ventilators, or air-supplied respirators. See ANSI Z49.1-1967.

If chest pain, cough, or fever develops after use, immediately call a physician.

Verify that brazing and gas welding fluxes containing fluorine compounds have a cautionary wording to indicate that they contain fluorine compounds.


**Note:** One such cautionary wording recommended by the American Welding Society for brazing and gas welding fluxes reads as follows:

### **CAUTION: CONTAINS FLUORIDES**

This flux when heated gives off fumes that may irritate eyes, nose and throat.

- Avoid fumes - use only in well-ventilated spaces.
- Avoid contact of flux with eyes or skin.
- Do not take internally.



	<b>Berry Bros. General Contractors, Inc.</b> <b>Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental</b> <b>Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 9 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
<b>Title: Hot Work / Welding Program</b>		

### **Ventilation for General Welding and Cutting**

Provide mechanical ventilation when welding or cutting is performed in:

- A space of less than 10,000 cubic feet (284 m(3)) per welder
- A room having a ceiling height of less than 16 feet (5 m)
- Confined spaces
- A welding space that contains partitions, balconies, OR other structural barriers to the extent that they significantly obstruct cross ventilation.

**Note:** Natural ventilation is considered sufficient for welding OR cutting operations IF the preceding restrictions are NOT present.

Verify that ventilation is at the minimum rate of 2,000 cubic feet (57 m (3)) per minute per welder, EXCEPT where:

- Local exhaust hoods are provided.
- Air line respirators approved by the U.S. Bureau of Mines for such purposes are provided.


### **SUBPART L - MAINTENANCE of EQUIPMENT**

Employees that are assigned to maintain the equipment (welding machines, cutting rigs, brazing, etc.) will be familiar with section 1910.254 and 1910.253(a)(b)&(c) and with the American Welding Society Standard A6-1-1966.

They will be adequately trained to maintain and repair equipment and associated leads and hoses. If repairs are needed that go beyond routine maintenance, an outside authorized vendor should be used and equipment taken out of service until repairs have been made.

### **SUBPART M - TRAINING SHALL INCLUDE:**

1. Review of requirements listed in OSHA 1910.252
2. Use of Hot Works Permit System
3. Supervisor Responsibilities
4. Fire Watch Responsibilities

	<b>Berry Bros. General Contractors, Inc.</b> <b>Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental</b> <b>Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 10 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
<b>Title: Hot Work / Welding Program</b>		

**Note:** Assigned firewatchers and employees will be trained in the use of fire extinguishing equipment and familiar with the facilities for sounding an alarm in the event of a fire. Specifically, the fire watch must know:

5. That their ONLY duty is Fire Watch.
6. When they can terminate the watch.
7. How to use the provided fire extinguisher.
8. How to activate fire alarm if fire is beyond the incipient stage.
9. Operator Responsibilities.
10. Contractors Responsibilities.
11. Documentation requirements.
12. Respirator Usage requirements.
13. Fire Extinguisher training.
14. Operators of equipment should report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Only a qualified person(s) shall make repairs.

## **SUBPART N - GENERAL WELDING AND CUTTING SAFETY RULES**

1. Only approved apparatus such as torches, regulators or pressure-reducing valves, acetylene generators, and manifolds shall be used.
2. An approved welding helmet must be worn with no less than No. 9 filter plate bordered by front and back safety plates.
3. During grinding and cutting operations two (2) forms of eye protection must be worn.
4. Keep welding leads and burning hose clear of passageways.
5. Inspect all leads, grounds, clamps, welding machines, hoses, gauges, torches, and cylinders each day before use.
6. Be sure that all fittings, couplings, and connections are tight.
7. Avoid breathing fumes. Use an exhaust system, blower, or a respirator if ventilation is inadequate.
8. No welding or burning is to be done on a closed vessel, tank, or on any vessel or tank that has not been purged of any lingering gases/vapors.
9. Prior to Hot Work operations, confirm that equipment which could contain Flammable Materials is gas free, by performing routine atmospheric testing, and has been isolated in accordance with **48 – Lockout / Tagout program**.
10. Before striking an arc or lighting a torch, check with site supervisor to see if a Welding and Burning Permit is required.
11. Each welder is responsible for containing sparks and slag and/or removing combustibles to prevent fire.



	<b>Berry Bros. General Contractors, Inc. Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 11 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
Title:	<b>Hot Work / Welding Program</b>	

12. A five-pound, or larger, dry-chemical fire extinguisher must be within 30 feet of any welding, burning, or open-flame work. Be sure you know how to operate the fire extinguisher.
13. All work must have an adequate ground. Do not leave a rod in the electrode holder when you lay it down. Put stub ends in proper container - not on the floor.
14. All arcs should be shielded in the operating area.
15. You are responsible for turning your machine off at the end of your shift.
16. Never do electric welding from a metal ladder.
17. Before connecting regulators to cylinders, carefully open the cylinder valve to blow out any foreign particles. Standing to one side of the gauge, check to ensure the second stage of the regulator is closed before slowly opening the cylinder valve.
18. Open valves on fuel gas cylinders (propane, acetylene, natural gas) a quarter turn only. Open oxygen cylinder valves wide open. The valve wrench must be kept in place during use.
19. Do not exceed 15 psi on the torch side of the gauge when using acetylene.
20. When lighting a torch, open the fuel gas valve on the torch before opening the oxygen valve. Use an approved spark lighter. Do not use matches or cigarettes to light a torch.
21. All burning rigs must be dismantled at the end of the shift. This includes removing regulators and installing/securing protective caps.
22. When transporting, moving, or storing compressed-gas cylinders, they must be tied off vertically to an adequate support system.
23. Oxygen cylinders shall be stored 20 feet away from any flammable gases or petroleum products in an upright position and secured.
24. Keep oil and grease away from oxygen-regulator hose and fittings. Do not store wrenches, dies, cutters, or other grease-covered tools in the same compartment with oxygen equipment.
25. Do not use compressed gas to clean your clothing, blow out holes, or otherwise clean your work area.
26. All hoses, gauges and torches must be inspected regularly for damage and/or leaks.
27. Never leave a torch in a vessel, tank or other closed container. Leaking hoses or valves may create a potential hazard.
28. Never use oxygen to power pneumatic tools, pressurize a container, blow out lines, or as a substitute for compressed air or other gases.
29. Place cylinders and hoses where they are not exposed to sparks and slag from a burning operation.
30. All torches must have check valves installed before being put in service



	<b>Berry Bros. General Contractors, Inc. Corporate Policy Procedure</b>  <b>(HSE) Health, Safety &amp; Environmental Policies and Procedures Manual</b>	
Issue Date: 10-23-09		Section # 39
Page: 12 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
Title:	<b>Hot Work / Welding Program</b>	

31. Handle cylinders with care, as follows:
  - a. Lift to upper levels with approved cages only.
  - b. Overhead lifts shall be made with approved cages/racks only.
  - c. Do not strike an arc on cylinders.
  - d. Do not use cylinders as rollers.
  - e. Do not lift with slings or by the protective cap.
32. No unauthorized person shall be allowed to use any welding equipment.
33. Arc welding units should be located in gas free arena.
34. Steel drums, barrels, or other closed vessels that have contained volatile liquids or gases must be thoroughly steamed, filled with water, or made safe by other approved methods before the cutting or welding torch is applied.
35. When a welder is cutting or welding on a line, no one should work in front of or near the open end.
36. Pieces of hot metal must not be left where other workers might be burned by handling or stepping on pieces of hot metal.
37. Only enough cable should be pulled out to reach the job. This will keep the trip and fall hazards to a minimum.
38. Welders should use care in securing a proper fit for goggles to prevent flying sparks from entering the eyes.
39. In changing welding rods, be certain not to make metal contact with the rod holder.
40. Welder working in the field performing overhead welding shall take the necessary protective measures to prevent being burned from dropping metal.
41. Rod size and amperage of the machine should be left to the discretion of an experienced, qualified welder.
42. An inspection for potential fire and explosion hazards of the area should be made before a welding or cutting operation begins.
43. Before hot work is started, a fire watch is to be appointed. A fire extinguisher is to be readily available.
44. Welders and helpers shall wear the proper Flame Resistant Clothing to prevent burns and the possibility of clothing fires. FRC's will meet NFPA 2112 guidelines.
45. Anytime a lens becomes cracked or broken, it should be replaced to provide the proper protection.
- 46.** Standing in water to weld is likely to cause shock. Use caution and common sense.
47. First aid equipment shall be made readily available at all times. All injuries shall be reported as soon as possible for medical attention. First aid shall be rendered until medical attention can be provided.



	<p style="text-align: center;"><b>Berry Bros. General Contractors, Inc.</b> <b>Corporate Policy Procedure</b></p> <p style="text-align: center;"><b>(HSE) Health, Safety &amp; Environmental</b> <b>Policies and Procedures Manual</b></p>	
Issue Date: 10-23-09		Section # 39
Page: 13 of 13		Doc # SWP - 39
Approver: Joe Berry		Revision: 4
Title: <b>Hot Work / Welding Program</b>		

Revision Date: 08-22-11, 11-19-14, 7-28-17  
3-20-2019

Approved By: Safety Committee 10-09