



**UNC**  
ENVIRONMENT,  
HEALTH & SAFETY

# Job Safety Analysis

Safety Information for The University of North Carolina at Chapel Hill

**JOB SAFETY ANALYSIS TOPIC: Energy Services**

Oxygen & Acetylene (OxyGas) Welding  
Operations at the Maintenance Shop area of the  
CoGeneration Facility



Title	Work Task	Hazards	Controls
	1. Close off welding area.	1a. Eye exposure (Flashes) to personnel walking adjacent to welding operations.  1b. Risk of additional safety hazard (s) to adjacent employees.  1c. Potential fire from contact with flammable chemicals and other flammable materials in the work area.	1a. Place welding shield/ flash barrier in position to shield outsiders from flashing and to prevent sparks and other potential ignition sources.  1b. Establish safety diameter around weld area (approx. 35 feet diameter).  1c. Remove flammable materials (e.g. aerosol spray cans-lubricants, etc.) from the welding area.
	2. Prepare for welding (primarily on carbon steel, sometimes stainless and aluminum metal.)	2a. Inhalation of fumes  2b. Flashing  2c. Sparks  2d. Slag splatter	2a. Turn on electrical panel #25 to turn on ventilation system before starting work.  2b,c,d. Get required personal protective equipment (PPE) from the Tool Room for the job. Use/Wear welding Face Shield with side shields with appropriate UV shaded protective filter lens and safety glasses.  Use/wear welding apron and heat resistant gloves.

Work Task		Hazards	Controls
	3. Remove gas cylinder caps, Set gauges, turn on gas cylinders.	3a. Problems associated with welding equipment hardware	3a. Inspect all compressed gas cylinders and hardware for proper connections and operation prior to commencing work. Test all connections for leaks. Store cylinders securely in an upright position to prevent them from falling.
Work Task		Hazards	Controls
	4. Clean tip, make sure hose connections and valves are tight, unwrap hoses.	4a. Pinching fingers 4b. Tripping	4a. Avoid pinch points. 4b. Unwrap hoses. 4c. Grease or oil should never come into contact with any of the welding components (torches, hoses, regulators, or cylinders).
Work Task		Hazards	Controls
	5. Use striker to light torch	5a. Burning fingers, hands body; flashing	5a. Use/Wear welding hood, welding jacket, apron, gloves, work shoes.
Work Task		Hazards	Controls
	6. Apply flame to material.	6a. Flashing, sparks, slag splatter 6b. Damaging hoses during welding or causing a fire.	6a. Use/Wear welding hood, welding jacket, apron, gloves, work shoes. 6b. Protect hoses from flying sparks and slag. Keep hoses untangled and free from feet and positioned behind worker to prevent burning hose and causing a fire.
Work Task		Hazards	Controls
	7. Allow material to cool on workbench.	7a. Burn to hands or fingers	7a. Wear gloves. Chalk mark welded area or mark area appropriately as: "Hot." if leaving the material unattended.
Work Task		Hazards	Controls
	8. Close valves, bleed off regulators, wrap hoses	8a. Pinching fingers 8b. Tripping	8a. Avoid pinch points. 8b. Keep hoses untangled and free from feet.

	<b>Work Task</b>	<b>Hazards</b>	<b>Controls</b>
	9. Use chipping hammer to remove excess slag.	9a. Eye damage by flying debris from hammer strikes  9b. Injuring fingers with hammer	9a. Wear safety glasses.  9b. Use caution to avoid striking fingers or hands with hammer
<b>Note(s): Controls (1a.) Do not permit welding and cutting operations in or near rooms containing flammable or combustible vapors or on or inside closed containers until all fire and explosion hazards have been eliminated.</b>			
<b>Training</b>	1. Operation of gas welder (Per OSHA 29 CFR 1910.251-254 “welding, cutting, and brazing”). 2. Operation of a fire extinguisher	Supervisor must review operating procedures with employee and maintain training records.	
<b>Required Personal Protective Equipment</b>	1. Welding hood 2. Welding apron 3. Gloves (e.g. Flame-resistant gauntlet/leather gloves) 4. Safety glasses 5. Work shoes (Steel-toed)		
<b>Referenced Material</b>	OSHA 29 CFR 1910.251-254 “welding, cutting, and brazing”		
<b>Created</b>	19 September 2008 Daniel Gilleski(Safety Officer) & Roger Phillips, CoGen Mechanical Maintenance Mechanic		
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