



JOB/TASK NAME Steel Bridge Fabrication		DATE 1/2/2020
JOB TITLE PERFORMING THE JOB/TASK Students		TEAM CAPTAINS
		SAFETY OFFICERS
REQUIRED PERSONAL PROTECTIVE EQUIPMENT	Safety glasses, face shield, gloves, work boots/shoes	



EQUIPMENT / TOOLS REQUIRED FOR JOB (Complete Tool Inspection Prior to Start of Job):

Welder, Grinder, Electrical Tools.

JOB STEPS		POTENTIAL HAZARDS	HAZARD CONTROL METHOD
1.	Safety Training	See items listed below	1) All persons actively engaged in fabrication activities must have safety training. The training shall include the following parts: <ul style="list-style-type: none"> a) General Shop Rules b) Hand and power tool safety c) Electrical safety d) Fire safety e) Personal protective equipment (PPE) 2) In addition to items listed above, welding equipment operators and designated safety officers must also have welding safety training. 3) Documentation that shows such training must be on file for each person. The documentation must consist of at least one of the following: <ul style="list-style-type: none"> a) Certificate or diploma showing successful completion of training that includes at least the safety items listed in item 1 above, or b) Completed Student Projects Shop Safety Rules exam, or c) Other evidence provided to the project faculty advisor that shows successful completion of training meeting the safety items listed in item 1 above.

2.	Hot Work Permit		<ul style="list-style-type: none"> 4) Hot Work may be done ONLY if there is a valid Hot Work permit posted. 5) If any condition exists that conflicts with the terms of the Hot Work permit then Hot Work shall NOT be performed until the condition is properly corrected. 6) Only persons specifically named on the appropriate, valid Hot Work permit may operate the welding equipment for the project. 7) If a Firewatch is required by the permit, a designated Firewatch is required for 30 minutes after hot work is completed for inspection.
3.	Housekeeping	<ul style="list-style-type: none"> a. Slips, trips, falls b. Fire c. Tool Conditions d. Sharp Objects 	<ul style="list-style-type: none"> 8) Keep work area clean and clear of debris. 9) Be aware of everything going on around. 10) Keep an eye on fellow workers and alert them of any potential risk/harm. 11) Locate fire extinguishers, fire blankets, and eye wash stations. 12) Clean work area after work is complete. 13) "Metals" trash cans are for metal only. 14) Other trash cans are for non-metallic trash and are to be kept out of the hot work area or shall be tightly covered. 15) Always sign in/out tools being used outside the designated work area.

4.	Tools and Equipment	<ul style="list-style-type: none"> a. Cut/Burn b. Electrical Hazards c. Noise levels 	<ul style="list-style-type: none"> 16) While tools or equipment are being used properly fitted personal protective equipment must be worn by the operator and others in the area. 17) Before use of any powered equipment or tool, a thorough inspection must be completed to insure proper working condition. Make any proper necessary corrections before use of the equipment. 18) Do not use equipment or tool that is damaged beyond repair or has any safety features missing (guards). Report damaged tool/equipment to team captain or safety advisor for "DO NOT OPERATE" tag. 19) Portable power equipment shall be unplugged when not in use. 20) All power cords shall be inspected before the cord or tool is used, periodically while being used, and when work with the cord or equipment is done for the day. Any damaged cord must be taken out of service immediately.
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5.	Welding, Cutting, and Grinding	<ul style="list-style-type: none"> a. Electrical Hazards b. Eye Injuries <ul style="list-style-type: none"> i. flying debris ii. flash burn c. Hand and Burn Injuries d. Fumes and gases e. 	<ul style="list-style-type: none"> 21) Inspect all cords, connectors, ground clamps, etc. for defects. Assure all protective covers/boots are in place to prevent contact with energized parts. 22) Inspect all hoses, regulators, and torches prior to use. 23) Safety glasses must be worn in an area while grinding, cutting, or welding are being conducted in that area. 24) Use the appropriate shade filter for the materials to be welded. Inspect all welding hoods/lenses for scratches, chips, or other damage. 25) Place welding screens around welding operations areas. 26) Inform all persons in the vicinity where welding may be performed of welding in progress. 27) Use proper ventilation during hot work or any dust producing processes. 28) Wear a properly fitted N-95 particulate mask designed for welding applications. 29) Do not weld painted or plated steel. Zinc or galvanized coatings and other coating produce poisonous fumes. 30) Remove excess oil and other contaminates from vicinity of the welded connection prior to welding. 31) Use the appropriate welding activity clothing. Use fire-resistant, long sleeve shirts, welding sleeves, or jackets to prevent burns from welding slag. 32) Gloves should NOT be worn while operating a bench or pedestal grinder because of the risk of the glove being grabbed by the rotating parts which could pull you into the machine. 33) The tool rest and wheel guard(s) shall be present and properly adjusted on the bench or pedestal grinder. 34) Before turning on the grinder, stand to the side of the grinder until after it has come up to full-speed. 35) A fire extinguisher needs to be available while welding or hot work is being performed close by.
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	<p>Welding, Cutting, and Grinding (continued)</p>	<p>f. Gas Cylinder Handling and Storage g. Fire Prevention</p>	<p>36) Follow all Hot Work Manual/Safety Rules.</p> <p>37) Store all cylinders in an upright position, with their valve protective caps screwed in place, secured in a manner to prevent inadvertent tip-over, and in an area isolated away from vehicle/equipment traffic.</p> <p>38) Keep all grease or oil away from oxygen cylinders. Inspect all regulators and valves for oil/grease contamination prior to use.</p> <p>39) Use proper lifting techniques when transferring cylinders from storage cages to gas bottle carts to prevent back/shoulder strains.</p> <p>40) Remove regulators prior to moving cylinders.</p> <p>41) Replace all valve cover caps after you remove regulators from the cylinder.</p> <p>42) Store fuel-gas cylinders (propane, acetylene, etc.) 20 feet from Oxygen cylinders at all times.</p> <p>43) Always stand to the side of the regulator gage and not facing it while opening the cylinder valve.</p> <p>44) The shield gas must be appropriate for the type of welding and materials used.</p> <p>45) Inspect all cylinders for defects prior to use.</p> <p>46) Cylinders not being used in the welding work shall be kept far enough away from areas where welding, sparks, or flame producing activities are present. Cylinders used directly for the welding work shall be protected from direct exposure to heat and sparks from the welding operation.</p> <p>47) Keep all flammable/combustible materials out of the hot work zone.</p> <p>48) Keep all hot work tools within the hot work zone.</p>
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