



FORMAL HAZARD ASSESSMENT

TITLE: Welding / Cutting / Brazing				FHA #: 009							
Positions Considered:			Assessment Team:				Date Created:		October 13, 2022		
Welder Welders Hand			Leo Marsh Justine Daggert Erin Stewart				Revision #:				
							Last Revision Date:				
Task	Health	Safety	Hazards Associated with Task <i>Identify hazards (as applicable) presented by; operations, equipment, vehicles, materials, products, working conditions and environment.</i>	Raw Risk Rating			Controls <i>Consider the Hierarchy of Controls.</i>	Residual Risk Rating			
				Severity	Probability	Overall Risk Rating		Severity	Probability	Overall Risk Rating	
Pre-Weld Inspection and Set up (Cleaning, Calibration, Preheating)		x	Burns from pre-heated welding equipment	3	2	6	Eng: Adm: Welding/Cutting/Burning Safe Work Procedure, Competency assessments annually. PPE: Insulated gloves, Flame resistant apron	2	1	2	
		x	Pinch points during setup	3	2	6	Eng: Adm: Manual Material Handling COP training, Welding/Cutting/Burning Safe Work Procedure, Competency Assessments annually. PPE: CSA Approved Gloves	2	1	2	
		x	Cuts and scrapes during setup and calibration	2	3	6	Eng: Adm: Pre-Weld inspection checklist, Inspection training, Welding/Cutting/Burning Safe Work Procedure. PPE: Insulated gloves, Flame resistant apron, CSA approved footwear	2	1	2	
Setting up of Screens and Guards		x	Pinch points from screen/guard set up	2	2	4	Eng: Adm: Manual Material Handling COP training, Welding/Cutting/Burning Safe Work Procedure, Competency Assessments annually.	1	2	2	



							PPE: CSA Approved Gloves				
	x	Muscle Strain from screen / guard set up	2	2	4		Eng: Adm: Manual Material Handling COP training, Adhere to proper lifting techniques in "Lifting and Handling" practice manual, Variation of tasks, Ergonomics training program. PPE:	2	1	2	
Welding / Brazing	x	Welders Flash (Photokeratitis)	4	3	12		Eng: Adm: SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessment annually. PPE: Welder's helmet, Coated eye protection (UVA/UVB)	3	2	6	
	x	Excessive noise levels from equipment	3	2	6		Eng: Noise suppressor on Machine Adm: SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessment annually. PPE: FR ear protection	2	1	2	
	x	x	Ultraviolet Radiation burns to skin from welding arcs and flames	4	4	16		Eng: Adm: SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessment annually. PPE: Welder's helmet, Hand shield, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots	3	2	6
		x	Electrical shock from welding machine	4	3	12		Eng: Grounding clamps, Circuit tester Adm: SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessment annually. PPE: Welder's helmet, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots	2	2	4
	x		Exposure to asphyxiants / carcinogens (Inhalation)	4	4	12		Eng: Local Exhaust Ventilation System Adm: Applicable SDS, COP – Working with Chemicals, SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessment annually, Gas monitor. PPE: Supplied Air Respirator.	2	2	4
	x		Exposure to corrosives, irritants, carcinogens, mutagens, teratogens (Absorption)	3	3	9		Eng: Adm: Applicable SDS, COP – Working with Chemicals, SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessment annually. PPE: Welder's helmet, Hand shield, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots	2	2	4
		x	Burns from arc / equipment	4	3	12		Eng: Adm: SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessment annually.	3	2	6



							<p>PPE: Welder's helmet, Hand shield, Supplied Air Respirator, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots</p>			
	x	Welding dust hazard (Inhalation)	4	3	12		<p>Eng: Local Exhaust Ventilation System</p> <p>Adm: Combustible Dust Hazard Assessment (DHA), SOP – Welding, Brazing, Burning and Cutting, Competency assessment annually.</p> <p>PPE: Welder's helmet, Supplied Air Respirator.</p>	3	2	6
	x	Welding dust hazard (Explosive Atmosphere)	4	3	12		<p>Eng: Local Exhaust Ventilation System</p> <p>Adm: Combustible Dust Hazard Assessment (DHA), Applicable SDS, SOP – Welding, Brazing, Burning and Cutting, Competency assessment annually.</p> <p>PPE: Welder's helmet, Hand shield, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots.</p>	3	2	6
	x	Fire / Explosion	4	3	12		<p>Eng: Emergency shut offs</p> <p>Adm: Gas Monitor, Applicable SDS, COP – Working with Chemicals, SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessment annually.</p> <p>PPE: Welder's helmet, Hand shield, Supplied Air Respirator, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots</p>	3	2	6
	x	Flashback from Compressed Gas Cylinder	3	3	9		<p>Eng: Reverse flow check valves</p> <p>Adm: SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessment annually.</p> <p>PPE: Welder's helmet, Hand shield, Supplied Air Respirator, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots</p>	2	2	4
	x	Thermal (Heat) Stress	3	3	9		<p>Eng: Indoor Facility Ventilation, Industrial Fans</p> <p>Adm: Facility thermometer, Scheduled breaks, SOP – Welding, Brazing, Burning and Cutting.</p> <p>PPE:</p>	2	2	4
	x	Awkward / Static body position when using welding equipment causing injury	4	2	8		<p>Eng: Standing Workbench, Seated Workbench</p> <p>Adm: Variation of tasks, Ergonomics training program.</p> <p>PPE:</p>	3	1	3
Plasma Cutting	x	Hot Sparks Causing Burns	4	3	12		<p>Eng:</p> <p>Adm: SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessments annually.</p> <p>PPE: Welder's helmet, Hand shield, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots</p>	3	2	6



	x	Hot Surfaces Causing Burns	3	3	9	<p>Eng:</p> <p>Adm: SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessments annually.</p> <p>PPE: Welder’s helmet, Hand shield, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots</p>	3	1	3
	x	Inhalation of Fumes	4	3	12	<p>Eng: Local exhaust ventilation</p> <p>Adm: Applicable SDS, SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Gas Monitor, Competency assessments annually.</p> <p>PPE: Welder’s helmet, Supplied Air Respirator</p>	3	2	6
	x	Electrical Shock	3	3	9	<p>Eng: Workpiece grounding clamp, Circuit tester</p> <p>Adm: SOP – Welding, Brazing, Burning and Cutting, Field Level Hazard Assessment, Competency assessments annually</p> <p>PPE: Welder’s helmet, Hand shield, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots</p>	2	2	4
Working in a Confined Space	x	Oxygen deficiency	4	3	12	<p>Eng: Local exhaust ventilation</p> <p>Adm: Confined Space Entry and Monitor ticket, Confined Space COP, Monitor/Tender, Annual Competency Assessments.</p> <p>PPE: Supplied Air Respirator.</p>	3	2	6
	x	Explosive atmosphere	4	4	16	<p>Eng: Local exhaust ventilation</p> <p>Adm: Confined Space Entry and Monitor ticket, Confined Space COP, CSA Z1006-16 Management of Work in Confined Spaces, Monitor/Tender, Annual Competency Assessments.</p> <p>PPE: Welder’s helmet, Hand shield, Supplied Air Respirator, Flame resistant apron, FR ear protection, Insulated gloves, Rubber soled safety boots.</p>	3	2	6
	x	Thermal (Heat) Stress	3	3	9	<p>Eng: Facility ventilation, Industrial fans</p> <p>Adm: Confined Space Entry and Monitor ticket, Confined Space COP, CSA Z1006-16 Management of Work in Confined Spaces, Monitor/Tender, Annual Competency Assessments, Scheduled breaks.</p> <p>PPE:</p>	2	3	6
	x	Exposure to Asphyxiants/Carcinogens (Inhalation)	4	4	16	<p>Eng: Local Exhaust Ventilation System</p> <p>Adm: Confined Space Entry and Monitor ticket, Confined Space COP, Monitor/Tender, Annual Competency Assessments.</p> <p>PPE: Welder’s helmet, Supplied Air Respirator</p>	3	2	6
After Job Clean Up	x	Tripping hazards from improperly placed material / equipment	3	2	6	<p>Eng: Designated walkways</p> <p>Adm: Safe Work Practice - Housekeeping</p>	2	1	2



							PPE: CSA Approved footwear			
	x		Fatigue due to exertion	3	2	6	Eng: Adm: Scheduled breaks, Fit for Duty policy, Stress and Fatigue Management Training, Ergonomics training program. PPE:	1	2	2
		x	Strains and Sprains from handling materials	2	3	6	Eng: Adm: Manual Material Handling COP training, Adhere to proper lifting techniques in “Lifting and Handling” practice manual, Variation of tasks, Ergonomics training program, Competency Assessments annually. PPE: CSA approved gloves	3	1	3
		x	Cuts and Scrapes from handling materials	3	2	6	Eng: Adm: Manual Material Handling COP training, Adhere to proper lifting techniques in “Lifting and Handling” practice manual. PPE: CSA approved gloves, CSA approved hardhat, CSA approved eye protection.	2	1	2
Interacting With Other Employees and Contractors		x	Violence from others	3	2	6	Eng: Adm: De-escalation training, Violence and Harassment Policy / procedure, Emergency response plan. PPE:	2	1	2
	x		Harassment from others	2	2	4	Eng: Adm: De-escalation training, Violence and Harassment Policy / procedure, Emergency response plan. PPE:	1	2	2



Risk Matrix

		Severity			
		1 - Insignificant	2 - Minor	3 - Major	4 - Severe
Probability	4 - Almost Certain	Medium 4	High 8	Extreme 12	Extreme 16
	3 - Likely	Medium 3	Medium 6	High 9	Extreme 12
	2 - Unlikely	Low 2	Medium 4	Medium 6	High 8
	1 - Rare	Low 1	Low 2	Medium 3	Medium 4

Probability pertains to the extent of how likely it is for the risk to occur.

The 4 risk rating levels for this component are:

1. **Rare** – unlikely to happen or has never happened.
2. **Unlikely** – has the possibility to happen or has happened at least once.
3. **Likely** – almost sure to happen or has happened multiple times.
4. **Almost certain** – sure to happen or has happened frequently.

Severity is to determine the level of effects that the hazard could cause.

The 4 risk rating levels for this component are:

1. **Insignificant** – can cause injuries/illnesses requiring first aid or negligible property damage.
2. **Minor** – can cause moderate injuries/illnesses requiring medical aid or moderate property damage.
3. **Major** – can cause irreversible injuries/illnesses requiring long term aid or serious property damage.
4. **Severe** – can result in a fatality or irreversible property damage.

Overall Risk Rating

Severity x Probability = Overall Risk Rating

Low - no further action needed; proper control measures are in place.

Medium – proceed with caution and monitor at regular intervals.

High – must be reviewed and reassessed prior to work proceeding.

Extreme – work must be stopped until adequate controls have reduced hazard to an acceptable level.

