

Job Hazard Analysis

Job/Activity Name: Drill Press Operation		Start Date: 06/04/2024	Evaluated for continuation:
Zone:	Bldg / Area Location(s): Bldg IV / Fab Shop	Job Prerequisites: <ul style="list-style-type: none"> ● Online General Safety Training ● Online Drill Press SOP Operation and Procedure Training ● In-person Drill Press Usage Training ● This Job Hazard Analysis ● Operations Manual 	
PPE, other equipment, personal preparations: <ul style="list-style-type: none"> ● Slip-resistant closed-toe footwear ● Clothing tightly buttoned and tucked and no long sleeves ● Loose hair and jewelry secured ● Safety eyewear ● Step 6 only - Cut resistant gloves for material handling after machine operation is concluded 		Engineering Controls (see training operation diagram): <ul style="list-style-type: none"> ● Spindle guards ● Clamped work material ● Depth gauge ● Table height 	
Administrative Controls: <ul style="list-style-type: none"> ● See job prerequisites ● Ensure others are present ● Ensure knowledge of emergency notification <ul style="list-style-type: none"> ○ Emergency Procedures Poster ○ Fab Shop Manager 		Monitoring: <ul style="list-style-type: none"> ● No atmospheric monitoring required. 	

Step #	Step	Hazard(s)	Control or Recommended Safe Job Procedures
1.	Examine work area to ensure it is clear of obstructions.	1a. Slips, trips, falls, mobility obstructions 1b. PPE and personal precautions	1a. Clear the work area of any debris or obstructions. 1b. Beginning with this step and throughout the remaining steps: <ul style="list-style-type: none"> ● Slip-resistant closed-toe footwear ● Long hair must be kept secure. No jewelry, clothing, or gloves that could get caught in machine. ● Eye protection
2.	Perform an equipment preoperational check.	2a. Anticipate potential for entanglement. 2b. Anticipate potential for injury due to improper machine operations.	2a. Never reach around spinning components. 2b. Ensure awareness of rotating parts and that guards and shields are adequate for protection.
3.	In case of malfunction or runaway operation	3. Injury due to crushing, caught in-between, laceration, and/or flying debris.	3. Deactivate machine by switching off and unplugging from wall. <ul style="list-style-type: none"> ● Notify Fab Shop Manager.
4.	Tightening the chuck and clamping material to table.	4a. Ergonomic strain or pinch injury to hand. 4b. Lacerations to hands	4a. Ensure that care is taken to avoid strain and pinch points. 4b. Never run hands along sharp material or machine edges.
5.	Drilling the material	5a. Operator entanglement 5b. Crushing injuries caused by contact with moving parts, or sharp items in area. 5c. Kickback or binding from improper table and/or clamp use. 5d. Eye injury from flying debris	5a. Maintain awareness of areas close to rotating parts. 5b. Keep hands from moving parts and pinch points. 5c. Securely use tool table and clamp material. 5d. Wear safety glasses.
6.	Handling material after machine operation	6a. Lacerations to hands 6b. Eye injury from debris	6a. Wear cut resistant gloves. Deburr material with tool and never run hands along edges. 6b. Use brush or vacuum to clean off material, not hands or blowing with mouth.

Job Hazard Analysis

Job/Activity Name: Vertical Bandsaw Operation		Start Date: 06/04/2024	Evaluated for continuation:
Zone:	Bldg / Area Location(s): Bldg IV / Fab Shop	Job Prerequisites: <ul style="list-style-type: none"> ● Online General Safety Training ● Online Vertical Bandsaw SOP Operation and Procedure Training ● In-person Vertical Bandsaw Usage Training ● This Job Hazard Analysis ● Operations Manual 	
PPE, other equipment, personal preparations: <ul style="list-style-type: none"> ● Slip-resistant closed-toe footwear ● Clothing tightly buttoned and tucked and no long sleeves ● Loose hair and jewelry secured ● Safety eyewear ● Step 6 only - Cut resistant gloves for material handling after machine operation is concluded 		Engineering Controls (see training operation diagram): <ul style="list-style-type: none"> ● Fence ● Miter gauge ● Blade guard ● Work table ● Push stick 	
Administrative Controls: <ul style="list-style-type: none"> ● See job prerequisites ● Ensure others are present ● Ensure knowledge of emergency notification <ul style="list-style-type: none"> ○ Emergency Procedures Poster ○ Fab Shop Manager 		Monitoring: <ul style="list-style-type: none"> ● No atmospheric monitoring required. 	

Step #	Step	Hazard(s)	Control or Recommended Safe Job Procedures
1.	Examine work area to ensure it is clear of obstructions.	1a. Slips, trips, falls, mobility obstructions 1b. PPE and personal precautions	1a. Clear the work area of any debris or obstructions. 1b. Beginning with this step and throughout the remaining steps: <ul style="list-style-type: none"> ● Slip-resistant closed-toe footwear ● Long hair must be kept secure. No jewelry or clothing that could get caught in machine. ● Eye protection
2.	Perform an equipment preoperational check.	2a. Anticipate potential for entanglement. 2b. Anticipate potential for injury due to improper machine operations.	2a. Never reach around or over moving components. 2b. Ensure awareness of the blade and that guards are adequate for protection.
3.	Positioning prior to beginning operation	3a. Blade flying loose (will likely happen to the right side)	3a. Position self on the left side of the machine (blade will typically fly to the right).
4.	In case of malfunction or runaway operation	4a. Injury due to laceration, and/or flying debris. 4b. Blade break	4a. Deactivate machine by switching off and unplugging from wall. 4b. Shut off power, unplug machine, stand clear, let the machine coast to a complete stop, and do not open wheel guards
5.	Cutting the material	5a. Operator entanglement 5b. Cutting injuries caused by contact with moving parts, or sharp items in area. 5c. Kickback or binding from improper table, fence and/or miter gauge use. 5d. Eye injury from flying debris	5a. Maintain awareness of areas close to moving parts. 5b. Keep hands and fingers 4 inches or more away from cut line. Otherwise, use push stick. 5c. Securely use table, fence, or miter gauge. 5d. Wear safety glasses.

Job Hazard Analysis (JHA) – Bandsaw Operation

Step #	Step	Hazard(s)	Control or Recommended Safe Job Procedures
6.	Handling material after machine operation	6a. Lacerations to hands 6b. Eye injury from debris	6a. Wear cut resistant gloves. Deburr material with tool and never run hands along edges. 6b. Use brush or vacuum to clean off material, not hands or blowing with mouth.

Job Hazard Analysis

Job/Activity Name: Grinder Operation		Start Date: 06/04/2024	Evaluated for continuation:
Zone:	Bldg / Area Location(s): Bldg IV / Fab Shop	Job Prerequisites: <ul style="list-style-type: none"> ● Online General Safety Training ● Online Bench Grinder SOP Operation and Procedure Training ● In-person Bench Grinder Usage Training ● This Job Hazard Analysis ● Operations Manual 	
PPE, other equipment, personal preparations: <ul style="list-style-type: none"> ● Slip-resistant closed-toe footwear ● Clothing tightly buttoned and tucked ● Loose hair and jewelry secured ● Safety eyewear with side protection ● Hearing protection ● Step 6 only - Cut resistant gloves for material handling after machine operation is concluded 		Engineering Controls (see training operation diagram): <ul style="list-style-type: none"> ● Wheel guards ● Eye shielding ● Tool material rest 	
Administrative Controls: <ul style="list-style-type: none"> ● See job prerequisites ● Ensure others are present ● Ensure knowledge of emergency notification <ul style="list-style-type: none"> ○ Emergency Procedures Poster ○ Fab Shop Manager 		Monitoring: <ul style="list-style-type: none"> ● No atmospheric monitoring required. 	

Job Hazard Analysis (JHA) – Grinder Operation

Step #	Step	Hazard(s)	Control or Recommended Safe Job Procedures
1.	Examine work area to ensure it is clear of obstructions/PPE Check/Buddy System.	1a. Slips, trips, falls, mobility obstructions 1b. All hazards associated with machine and items generated by the machine	1a. Clear the work area of any debris or obstructions. 1b. Beginning with this step and throughout the remaining steps: <ul style="list-style-type: none"> ● Slip-resistant closed-toe footwear ● Long hair must be kept secure. No jewelry, clothing or gloves that could get caught in machine. ● Eye and hearing protection
2.	Perform an equipment preoperational check.	2a. Anticipate potential for entanglement 2b. Anticipate potential for injury due to improper machine operations.	2a. Never reach over spinning components. 2b. Ensure awareness of rotating parts and that guards and shields are adequate for protection.
3.	In case of malfunction or runaway operation	3. Injury due to crushing, caught in-between, laceration, and/or flying debris.	3. Deactivate machine by switching off and unplugging from wall.
4.	Grinding the material	4a. Operator entanglement 4b. Crushing injuries caused by contact with moving parts. 4c. Kickback or hand fatigue from improper tool material rest use. 4d. Eye injury from flying debris and sparks	4a. Maintain awareness of areas close to rotating parts. 4b. Keep hands from moving parts and pinch points. 4c. Securely use tool material rest. 4d. Wear safety glasses.
5	Turn off grinder	5a. Abrasions/lacerations/pinch points	5a. Do not attempt to touch the rotating disk or remove material until the grinder has stopped moving completely.

Job Hazard Analysis (JHA) – Grinder Operation

Step #	Step	Hazard(s)	Control or Recommended Safe Job Procedures
6.	Handling material after grinder operation	6a. Lacerations to hands 6b. Eye injury from debris	6a. Wear cut resistant gloves. Deburr material with tool and never run hands along edges. 6b. Use brush or vacuum to clean off material, not hands or blowing with mouth.

Job Hazard Analysis

Job/Activity Name: Waterjet Cutter Operation		Start Date: 06/04/2024	Evaluated for continuation:
Zone:	Bldg / Area Location(s): Bldg IV / Fab Shop	Job Prerequisites: <ul style="list-style-type: none"> • Online General Safety Training • Online Waterjet Cutter SOP Operation and Procedure Training • In-person Waterjet Cutter Usage Training • This Job Hazard Analysis • Operations Manual 	
PPE, other equipment, personal preparations: <ul style="list-style-type: none"> • Slip-resistant closed-toe footwear • Clothing tightly buttoned and tucked • Loose hair and jewelry secured • Safety eyewear • Hearing protection • Cut resistant gloves during material handling • Water resistant gloves when reaching into water if you have cuts or wounds hands 		Engineering Controls (see training operation diagram): <ul style="list-style-type: none"> • Cutting stage lid • Catcher tank 	
Administrative Controls: <ul style="list-style-type: none"> • See job prerequisites • Ensure others are present • Ensure knowledge of emergency notification <ul style="list-style-type: none"> ○ Emergency Procedures Poster ○ Fab Shop Manager 		Monitoring: <ul style="list-style-type: none"> • No atmospheric monitoring required. 	

Job Hazard Analysis (JHA) – Waterjet Cutter Operation

Step Number	Step	Hazard(s)	Control or Recommended Safe Job Procedures
1.	Examine work area to ensure it is clear of obstructions.	1a. Slips, trips, falls, mobility obstructions 1b. PPE and personal precautions	1a. Clear the work area of any debris or obstructions. 1b. Beginning with this step and remaining throughout the remaining steps: <ul style="list-style-type: none"> • Slip-resistant closed-toe footwear • Long hair must be kept very secure. No jewelry or gloves that could get caught in equipment. • Eye protection
2.	Load material on cutting stage and applying clamps	2a. Laceration from material or metal slat support structure. 2b. Ergonomic hand strain and pinch injuries from clam application.	2a. Wear cut resistant gloves and never run hands along sharp edges. 2b. Ensure that care is taken to avoid strain and pinch points.
3.	Filling catcher tank with water from hose.	3a. Slips, trips, and falls due to wet surfaces or entanglement with hose.	3a. Ensure that walking surfaces are kept dry, and of awareness of trip hazards.
4.	In case of malfunction or runaway operation.	4. Injury due to crushing, caught in-between, laceration, and/or flying debris.	4. Deactivate grinder by switching off and unplugging from wall. <ul style="list-style-type: none"> • Notify Fab Shop Manager.
5.	Operating machine	5a. Excessive noise levels 5b. Lacerations from the jet, pinching or crushing hazards from cutting stage mechanisms, flying water and abrasive debris in eyes.	5a. Wear hearing protection 5b. Keep cutting stage lid closed and wear safety eyewear.
6.	Removing material from cutting stage.	6a. Laceration from material or metal slat support structure. 6b. Infection of previous cuts or wounds on hands from contaminated water. 6c. Ergonomic hand strain and pinch injuries from clam application. 6d. Slip and fall from wet floor from water that has been discharged from the machine.	6a. Wear cut resistant gloves and never run hands along sharp edges. 6b. Wear water resistant gloves 6c. Ensure that care is taken to avoid strain and pinch points. 6d. Always dry up wetted surfaces