

# **Job Hazard/Safety Analysis For the Plumber**

## **INTRODUCTION**

Job Hazard/Safety Analysis for the Plumber is a partial list of known task performed by the professional plumber. We have placed the tasks in alphabetical order and in a table format, listing each in a step-by-step sequence followed by the potential hazard and a recommended action or procedure.

This is by no means an exhaustive list and is subject to modification. Additional comments may be added as more information becomes available.

If you are asked to perform an occasional task, not listed with your job title, you can look up an individual task by returning to our Job Safety Analysis page and check the pull-down menu for Job Task.

## APHABETICAL LIST OF TASK

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### Hazard Analysis: Air Compressor

Task	Hazard	Cause	Prevention
Shutdown and Isolate Unit	Unit Activation during repair	Auto start and/or human error	Lockout/Tagout
	Noise	Equipment Operation	Use Hearing Protection
Routine Maintenance /Repair	Hand Injury	Confined work areas, sharp edges	Gloves
	Eye Injury	Residual air pressure	Goggles, safety glasses with side shields
	Electric Shock	Improper operation and maintenance	Manufacturer's instructions strictly followed, lock-out/tag-out
	Noise	Equipment Operation	Use hearing protection
Routine Operation	Noise	Equipment Operation	Use hearing protection
	Eye Injury	Blowing debris	Use safety glasses w/side shields or goggles

#### PPE Required:

- Goggles/Safety Glasses with side shield
- Hearing Protection
- Gloves

### Hazard Analysis: Air Compressor, Portable, Electric

Task	Hazard	Cause	Prevention
Routine Maintenance /Repair	Electric Shock	Improper operation and maintenance	Unplug electrical cord and retain control of plug during repair/maintenance
Routine Operation	Noise	Equipment operation	Use hearing protection
	Trauma	Improper use, uncontrolled release of compressed air	Use appropriate nozzle for specific work activity, situational awareness
	Eye Injury	Projectiles, flying debris	Goggles or safety glasses with side shields

#### PPE Required:

- Goggles or Safety glasses with side shield
- Hearing Protection

### Hazard Analysis: Air Sprayer

Task	Hazard	Cause	Prevention
Shutdown and Isolate Unit	Unit Activation during repair	Auto start and/or human error	Lockout/Tagout
	Noise	Equipment Operation	Use Hearing Protection
Routine Maintenance/Repair	Hand Injury	Confined work areas, sharp edges	Gloves
	Eye Injury	Residual air pressure	Goggles, safety glasses with side shields
	Electric Shock	Improper operation and Maintenance	Manufacturer's instructions strictly followed, lock-out/tag-out
	Noise	Equipment Operation	Use hearing protection
Routine Operation	Noise	Equipment operation	Use hearing protection

#### PPE Required:

- Safety Glasses with side shield
- Hearing Protection
- Gloves

### Hazard Analysis: ATV 4-Wheeler

Task	Hazard	Cause	Prevention
Routine Maintenance/Repair	Hand Injury	Confined work areas, sharp edges/objects, rotating parts	Gloves, situational awareness
	Foot Injury	Equipment rolls over foot, object drops on foot	Wear safety shoes
	Trauma	Rotating parts	Situational awareness, appropriate clothing
	Muscle/Ligament Strain	Awkward working positions	Position body to avoid strains, take appropriate breaks
	Eye Injury	Flying Particles	Goggles/Safety Glasses w/side shields
	Noise	Equipment Operation	Use hearing protection
Routine Operation	Noise	Equipment Operation	Use hearing protection
	Head Injury	Fall from 4-Wheeler, accident	Wear helmet

#### PPE Required:

- Helmet
- Safety glasses, goggles or helmet face shield
- Gloves
- Hearing Protection
- Safety Shoes/boots protective clothing (optional)

**Hazard Analysis: Auger (Post Hole), Gasoline Powered**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Dust/particles generated during machine operation, exhaust fumes	Appropriate natural ventilation, disposable respirators
	Eye Injury	Projectiles	Safety glasses with side shield or appropriate safety goggles
	Trauma	Projectiles, point of operation, flying debris & sparks, improper use and operation, loose clothing becoming entangled	Situational awareness, PPE, machine guards, Manufacturer's instructions followed, do not wear loose clothing
	Noise	Engine	Ear plugs/ear muffs
	Foot Injury	Drop object on foot, impact of auger	Safety shoes
	Hand Injury	Point of operation, in-going nip points, rotating parts, flying debris and sparks	Gloves, machine guards, situational awareness
	Fire	Sparks	Appropriate placed fire extinguisher, remove all combustibles and fire hazards

**PPE Required:**

- Gloves (leather)
- Goggles/Safety Glasses w/side shield disposable respirator (optional)
- Safety Shoes/boots
- Hearing Protection



**Hazard Analysis: Band Saw**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Hazardous fumes, gases, dusts	Appropriate ventilation, as required, disposable respirators
	Eye Injury	Projectiles	Safety glasses with side shield or appropriate safety goggles
	Trauma	Projectiles, rotating parts, point of operation, ingoing nip points, flying chips & sparks	Situational awareness, PPE, protective clothing, machine guards
	Foot Injury	Drop object on foot	Wear safety shoes
	Hand Injury	Sharp objects	Gloves as appropriate for task
	Fire	Sparks	Appropriate placed fire extinguisher, remove all combustibles and fire hazards
	Electrical Shock	Improper grounding, improper operations and maintenance	Proper grounding of frame, manufacturer's instructions strictly followed

**PPE Required: protective Clothing (optional)**

- Goggles/Safety Glasses w/side shield
- Face Shield
- Safety Shoes/Boots disposable Respirator (optional)

### Hazard Analysis: Battery Charger

Task	Hazard	Cause	Prevention
General Use	Foot Injury	Drop object on foot	Wear safety shoes
	Trauma (Burns)	Battery acid spills	Goggles, apron, gloves, proper battery handling procedures
	Eye Injury	Battery acid splashes	Goggles, appropriate battery handling procedures
	Electrical Shock	Improper operation and maintenance, battery condition	Lockout/tagout, manufacturer's instructions strictly followed
	Fire	Sparks, improper storage of flammables, combustibles	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from machine area
	Explosion	Spark/poor ventilation, smoking, improper procedures	Adequate ventilation, no smoking, follow manufacturer's instructions

#### PPE Required:

- Apron
- Gloves
- Safety Shoes/Boots
- Goggles

**Hazard Analysis: Bench Grinder**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Dust/particles generated during machine operation	Appropriate natural ventilation, disposable respirators
	Eye Injury	Projectiles	Safety glasses with side shield or appropriate safety goggles
	Trauma	Projectiles	Situational awareness, PPE, protective clothing, machine guards
	Foot Injury	Drop object on foot	Wear safety shoes
	Hand Injury	Impact, penetration, compression	Gloves, situational awareness
	Head Protection	Projectiles	Face Shield
	Fire	Heat, sparks	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from grinding/buffing area
	Electrical Shock	Improper grounding, Improper operations and maintenance	Lockout/tagout, proper grounding of frame, manufacturer's instructions strictly followed

**PPE Required: protective Clothing (optional)**

- Goggles/Safety Glasses w/side shield
- Face Shield
- Safety Shoes/Boots disposable Respirators (optional)
- Gloves

**Hazard Analysis: Chemicals (Pouring/Handling)**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Eye Injury	Splash, fumes	Goggles
	Contact irritation, burn or absorption	Splash, skin contact	Gloves (appropriate type for chemical), apron (if necessary), long sleeves
	Ingestion	Breathing fumes	Wear respirator if needed
	Face	Splash	Wear Face Shield (if necessary)

**PPE Required:**

- Goggles
- Gloves protective Clothing (apron)
- Respirator (as needed)
- Face shield (if necessary)

**Hazard Analysis: Cleaning (Body Fluid Clean-Up)**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Eye Injury	Fumes, splashes and dusts (cleaning agents)	Goggles, face shield
	Trauma	Sharp objects, impact	Situational awareness, gloves
	Foot Injury	Dropped object on foot	Wear safety shoes (if necessary)
	Inhalation	Chemicals, body fluids	Wear respirator or dust mask (if needed), gloves

**PPE Required:**

- Goggles
- Face shield
- Safety Shoes/boots (if necessary)
- Gloves (chemical/biological resistant) protective Clothing (Apron)
- Respirator or dust mask (as needed)

**Hazard Analysis: Cleaning (Sweeping/Mopping/Buffering)**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Trauma	Projectiles, impact, chemical contact	Situational awareness, gloves, protective clothing
	Foot Injury	Dropped object on foot	Wear safety shoes
	Ingestion	Chemicals, dust	Wear respirator or dust mask if needed

**PPE Required:**

- Safety Shoes/boots
- Gloves (optional) protective Clothing (long pants recommended to prevent chemical splash on skin)
- Respirator or dust mask (as needed)

### Hazard Analysis: Compound Miter Saw

Task	Hazard	Cause	Prevention
General Use	Inhalation	Dust/particles generated during machine operation	Appropriate natural ventilation, disposable respirators
	Eye Injury	Projectiles	Safety glasses with side shield or appropriate safety goggles
	Trauma	Projectiles, rotating parts, point of operation, ingoing nip points, flying chips & sparks	situational awareness, PPE, protective clothing, machine guards
	Foot Injury	Drop object on foot	Wear safety shoes
	Hand Injury	Point of Operation, ingoing nip points, rotating parts, flying chips & sparks	Machine guards, situational awareness
	Fire	Sparks	Appropriate placed fire extinguisher, remove all combustibles and fire hazards
	Electrical Shock	Improper grounding, improper operation and maintenance	Proper grounding of frame, manufacturer's instructions strictly followed

#### PPE Required:

- Protective Clothing (optional)
- Goggles/Safety Glasses w/side shield
- Safety Shoes/Boots
- Disposable Respirators (optional)

**Hazard Analysis: Cutoff Saw**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Dust/particles generated during machine operation	Appropriate natural ventilation, disposable respirators, automatic vacuum machine
	Eye Injury	Projectiles	Safety glasses with side shield or appropriate safety goggles
	Trauma	Projectiles, rotating parts, point of operation, ingoing nip joints, flying chips & sparks	Situational awareness, PPE, protective clothing, machine guards
	Foot Injury	Drop object on foot	Safety shoes
	Hand Injury	Point of Operation, ingoing nip points, rotating parts, flying chips and sparks	Machine guards, situational awareness
	Head Protection	Projectiles	Face Shield
	Fire	Heat, sparks	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from area
	Electrical Shock	Improper grounding, improper operations and maintenance	Lockout/tagout, proper grounding of frame, manufacturer's instructions strictly followed

**PPE Required:**

- Safety Shoes/Boots
- Safety glasses/goggles
- Face Shield (optional) disposable Respirators (optional)
- Hearing Protection



### Hazard Analysis: "Ditchwitch" Trencher

Task	Hazard	Cause	Prevention
Routine Maintenance/Repair	Hand Injury	Confined work areas, sharp edges/objects, rotating parts	Gloves, situational awareness
	Foot Injury	Equipment rolls over foot, object drops on foot	Wear safety shoes
	Trauma	Rotating parts	Situational awareness, appropriate clothing
	Eye Injury	Flying particles	Safety glasses
	Noise	Equipment Operation	Use hearing protection
Routine Operation	Noise	Equipment Operation	Use hearing protection
	Head Injury	Bump head, objects fall on head	Wear hard hat (as necessary)
	Foot Injury	Equipment rolls over foot, object drops on foot	Wear safety shoes
	Hand Injury	Sharp edges/objects	Wear Gloves

#### PPE Required:

- Protective Clothing
- Safety Shoes/Boots
- Safety Glasses
- Hard
- Gloves
- Hearing Protection

### Hazard Analysis: Drill Bit Sharpener

Task	Hazard	Cause	Prevention
General Use	Eye Injury	Projectiles, filings	Safety glasses with side shield or appropriate safety goggles
	Hand Injury	Point of operation, ingoing nip points, rotating parts, flying chips and sparks	Situational awareness
	Electrical Shock	Improper grounding, improper operations and maintenance	Proper grounding of frame, manufacturer's instructions strictly followed

#### PPE Required:

- Safety Glasses w/side shield

**Hazard Analysis: Drill Press**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Electrical Shock	Sparks, friction
	Eye Injury	Filings/particles generated during machine operation	Improper grounding, improper operations and maintenance
	Inhalation	Dust/particles generated during machine operation	Appropriate natural ventilation, disposable respirators
	Trauma	Projectiles, flying sparks	Safety glasses with side shield or appropriate safety goggles situational awareness
	Foot Injury	Projectiles, rotating parts, point of operation, ingoing nip points, flying chips & sparks	Wear safety shoes
	Hand Injury	Drop object on foot	Gloves (optional), machine guards, situational awareness
	Head Protection	Point of operation, ingoing nip points, rotating parts, flying chips & sparks	Face shield (if necessary)
	Fire	Projectiles	Proper grounding of frame, manufacturer's instructions strictly followed. Appropriate placed fire extinguisher, remove all combustibles and fire hazards

**PPE Required:**

- Protective Clothing (optional)
- Safety Shoes/Boots
- Goggles/Safety Glasses w/side shield disposable
- Respirators (optional)
- Face shield
- Gloves (optional)

### Hazard Analysis: Driving

Task	Hazard	Cause	Prevention
General Use	Trauma	Projectiles, impact, vibration, burns	Situational awareness, gloves (optional), seat belts
	Noise	Engine, impact	Wear hearing protection for noise level over 85db

### PPE Required:

- Hearing Protection
- Gloves (optional)

**Hazard Analysis: Drum, 30-55 Gal (Handling)**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Eye Injury	Splashes	Goggles (for handling exposed chemicals)
	Trauma	Impact	Situational awareness, gloves
	Foot Injury	Dropped object on foot	Wear safety shoes

**PPE Required:**

- Goggles
- Safety Shoes/boots
- Gloves

### Hazard Analysis: Floor Jack, Hydraulic

Task	Hazard	Cause	Prevention
General Use	Foot Injury	Roll jack over foot	Wear safety shoes
	Trauma	Overloading jack beyond rated capacity, using jack for support rather than just lifting	Follow manufacturer's instructions. Ensure that rated load is legibly and permanently marked in a prominent location on jack, and rated capacity is not exceeded. Immediately support load once it is lifted.

#### PPE Required:

- Safety Shoes/Boots

### Hazard Analysis: Hand Held Pneumatic Tools

Task	Hazard	Cause	Prevention
General Use	Eye Injury	Residual air pressure, flying debris	Goggles/safety glasses with side shields, situational awareness
	Trauma	Air pressure, ejection of tool	Situational awareness, tool retainer
	Noise	Equipment Operation	Use hearing protection

#### PPE Required:

- Safety Glasses with side shield/Goggles
- Hearing Protection
- Gloves (optional)

### Hazard Analysis: Hand Held Portable Power Tools

Task	Hazard	Cause	Prevention
General Use	Inhalation	Dust/particles generated during machine operation	Appropriate natural ventilation, disposable respirators (if necessary), automatic vacuum machine
	Eye Injury	Projectiles	Safety glasses with side shield or appropriate safety goggles
	Foot Injury	Drop object on foot	Wear safety shoes
	Hand Injury	Point of operation, ingoing nip points, rotating parts, flying chips & sparks	Machine guards, situational awareness
	Head Protection	Projectiles	Face Shield
	Fire	Sparks	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from machine area
	Noise	Machine operation	Hearing protection
	Electrical Shock	Improper grounding, improper operations and maintenance	Proper grounding of frame, manufacturer's instructions strictly followed

#### PPE Required:

- Protective Clothing (optional)
- Safety Shoes/Boots
- Goggles/Safety Glasses w/side shields
- Disposable Respirators (optional)
- Face shield, as appropriate
- Hearing Protection



**Hazard Analysis: Heat Gun**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Fumes, vapors and gases generated during use	Properly ventilated work area, use disposable respirators
	Burns	Hot air, contact with heat gun	Situational awareness, gloves
	Electrical Shock	Improper operation & maintenance	Manufacturer's instructions strictly followed, replace worn parts

**PPE Required:**

- Gloves disposable Respirators (optional, if appropriate)

**Hazard Analysis: High Pressure Washer, Gasoline Powered**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Trauma	Flying debris, contact with high pressure stream	Situational awareness, protective clothing
	Hand Injury	Flying debris, contact with high pressure stream	Situational awareness, gloves
	Head Injury	Flying debris	Situational awareness, face shield, hard hat (as necessary)
	Foot Injury	Drop object on foot, contact with high pressure stream	Wear safety shoes
	Eye Injury	Flying debris	Goggles/safety glasses with side shields, face shield
	Electric Shock	Improper operation and maintenance	Manufacturer's instructions strictly followed
	Fire	Smoking, sparks	No smoking or exposure to sparks or open flame during fueling. Appropriate placed fire extinguisher.
	Noise	Equipment Operation	Use hearing protection

**PPE Required:**

- Protective Clothing (optional)
- Safety Shoes/Boots
- Goggles Hard Hat (as necessary)
- Face shield Gloves
- Hearing Protection Apron (optional)

### Hazard Analysis: Hydraulic Press

Task	Hazard	Cause	Prevention
General Use	Eye Injury	Projectiles	Safety glasses with side shield or appropriate safety goggles
	Trauma	Projectiles, moving parts, point of operation, pinch points, flying items	Situational awareness, PPE, protective clothing, machine guards
	Foot Injury	Drop object on foot	Wear safety shoes
	Hand Injury	Point of operation, pinch points, moving parts, flying items.	Gloves, machine guards, situational awareness
	Head Protection	Projectiles	Face Shield (as necessary)

#### PPE Required:

- Protective Clothing (optional)
- Safety Shoes/Boots
- Goggles/Safety Glasses w/side shield
- Gloves
- Face shield (as necessary)

### Hazard Analysis: Jack Stands, Manual

Task	Hazard	Cause	Prevention
General Use	Foot Injury	Improper placement of load	Situational awareness, wear safety shoes
	Trauma	Overloading vehicle stand beyond rated capacity	Follow manufacturer's instructions. Ensure that rated load is legibly and permanently marked in a prominent location on vehicle stand, and rated load capacity is not exceeded.

#### PPE Required:

- Safety Shoes/Boots

### Hazard Analysis: Lifting/Carrying Objects

Task	Hazard	Cause	Prevention
General Use	Trauma	Impact	Situational awareness, gloves, back brace/belt (optional)
	Foot Injury	Dropped object on foot	Wear safety shoes/boots

#### PPE Required:

- Safety Shoes/boots
- Gloves
- Back brace/belt (optional)

### Hazard Analysis: Loft/Mezzanine/Roofing Operations

Task	Hazard	Cause	Prevention
General Use	Trauma	Impact, falls	Situational awareness, gloves, fall protection (restraint)
	Foot Injury	Dropped object on foot	Wear safety shoes

#### PPE Required:

- Safety Shoes/boots
- Fall Protection (restraint)
- Gloves

**Hazard Analysis: LP Gas Torch (14oz to 20oz Propane Cylinder)**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Hazardous fumes, gases, dusts	Appropriate natural or mechanical ventilation, and disposable respirators, as required
	Eye Injury	Projectiles, fumes, dusts, flashes	Goggles/safety glasses w/side shields, appropriate noncombustible or flameproof screens
	Trauma	Projectiles, burns	Situational awareness, gloves
	Foot Injury	Equipment Operation	Wear safety shoes
	Fire	Heat, sparks, slag	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from area

**PPE Required:**

- Safety Shoes/Boots
- Gloves
- Goggles/Safety Glasses w/side shields disposable respirator (optional) protective Clothing (optional)

**Hazard Analysis: Oxygen-Acetylene Torch**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Hazardous fumes, gases, dusts	Appropriate mechanical ventilation, as required, respirator
	Eye Injury	Projectiles, fumes, dusts, flashes	Helmets, safety glasses w/side shields/ goggles, appropriate noncombustible or flame-proof screens
	Trauma	Projectiles, burns	Situational awareness, PPE, protective clothing
	Foot Injury	Drop object on foot	Wear safety shoes
	Fire	Heat, sparks, slag	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from welding area

**PPE Required:**

- Protective Clothing disposable Respirators
- Safety Shoes/Boots
- Goggles/Safety Glasses w/side shields



**Hazard Analysis: Pallet Jack & Dolly, Hydraulic**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Foot Injury	Roll jack over foot	Wear safety shoes
	Trauma	Overloading jack beyond rated capacity, using jack for support rather than just lifting, sharp objects	Follow manufacturer's instructions, gloves

**PPE Required:**

- Safety Shoes/Boots
- Gloves

**Hazard Analysis: Parts Cleaner, Vat**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Organic vapors, hydrocarbons	Appropriate ventilation, respirators when needed
	Eye Injury	Chemical splash, fumes	Goggles and face shield
	Skin Irritation/Absorption	Chemical splash, contact with vat liquids	Situational awareness, gloves, protective clothing
	Foot Injury	Drop object on foot	Wear safety shoes
	Fire	Heat, sparks, slag	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from area

**PPE Required:**

- Protective Clothing (Rubber Apron)
- Safety Shoes/Boots
- Goggles and Face Shield
- Disposable Respirator (Optional)
- Rubber gloves

### Hazard Analysis: Plate Compactor

Task	Hazard	Cause	Prevention
General Use	Eye Injury	Projectiles, fumes, dusts	Safety glasses w/side shields or goggles
	Trauma	Projectiles, impact, vibration, burns	Situational awareness, gloves, protective clothing, back brace/belt (optional), switch guards
	Foot Injury	Dropped object on foot	Wear safety shoes
	Noise	Engine, impact	Wear hearing protection
	Inhalation	Dust	Wear respirator or dust mask if needed

#### PPE Required:

- Safety Glasses w/side shields or Goggles
- Safety Shoes/boots
- Hearing Protection
- Gloves protective Clothing (long pants)
- Respirator or dust mask (as needed)
- Back brace/belt (optional)

### Hazard Analysis: Pipe Threading and Cutting

Task	Hazard	Cause	Prevention
General Use	Foot Injury	Drop object on foot	Safety Shoes
	Electric Shock	Improper operation and maintenance, improper grounding	Manufactures instructions strictly followed, proper grounding
	Hand Injury	Point of operation, rotating parts	Gloves, situational awareness
	Eye Injury	Flying particles	Safety glasses w/side shields
	Noise	Running equipment	Hearing protection for noise in excess of 85db

#### PPE Required:

- Safety Glasses w/side shields
- Safety Shoes/ Boots
- Gloves
- Hearing Protection

**Hazard Analysis: Portable Arc Welder, Gasoline Powered**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Hazardous fumes, gases, dusts	Appropriate ventilation, respirator as required
	Eye Injury	Projectiles, fumes, dusts, flashes	Helmets, goggles/safety glasses, appropriate noncombustible or flameproof screens
	Trauma	Projectiles, burns	Situational awareness, PPE, protective clothing, switch guards
	Foot Injury	Drop object on foot	Wear safety shoes
	Fire	Heat, sparks, slag	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from machine area
	Electrical Shock	Improper grounding, improper operations and maintenance, improper switching device	Lockout/tagout, proper grounding of secondary and case portable welding transformers, manufacturer's instructions strictly followed, proper switching for shutting down machine

**PPE Required:**

- Safety Shield/Helmet with Filter Lens
- Fire resistant gauntlet gloves
- Safety shoes/boots
- Respirator
- Safety glasses w/side shields or Goggles
- Protective
- Clothing (Full sleeves, no front pockets, no cuffs, Shirt left outside of trousers, made of clean fire-resistant materials)

### Hazard Analysis: Portable Generator, Gasoline Powered

Task	Hazard	Cause	Prevention
General Use	Inhalation	Exhaust	Appropriate ventilation
	Trauma	Burns	Situational awareness, PPE, protective clothing
	Foot Injury	Roll over foot, drop object on foot	Wear safety shoes
	Fire	Heat, sparks, slag	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from area
	Electrical Shock	Improper operations and maintenance, improper switching device	Strictly follow manufacturer's instructions, proper switching for starting up/ shutting down machine

#### PPE Required:

- Leather Gloves
- Safety Shoes/ Boots

### Hazard Analysis: Portable Heater, Electric Powered

Task	Hazard	Cause	Prevention
General Use	Trauma	Burns	Situational awareness, PPE, protective clothing
	Foot Injury	Roll over foot, drop object on foot	Wear safety shoes
	Fire	Heat, sparks, slag	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from area
	Electrical Shock	Improper operations and maintenance, improper switching device	Strictly follow manufacturer's instructions, proper switching for starting up/ shutting down machine

#### PPE Required:

- Leather Gloves
- Safety Shoes/ Boots

### Hazard Analysis: Portable Heater, Gasoline Powered

Task	Hazard	Cause	Prevention
General Use	Inhalation	Exhaust	Appropriate ventilation
	Trauma	Burns	Situational awareness, PPE, protective clothing
	Foot Injury	Roll over foot, drop object on foot	Wear safety shoes
	Fire	Heat, sparks, slag	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from area
	Electrical Shock	Improper operations and maintenance, improper switching device	Strictly follow manufacturer's instructions, proper switching for starting up/ shutting down machine

#### PPE Required:

- Leather Gloves
- Safety Shoes/ Boots



**Hazard Analysis: Power Hacksaw**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Dust/particles generated during machine operation, exhaust fumes	Appropriate natural ventilation, respirators when needed
	Eye Injury	Projectiles, burns	Safety glasses with side shield or appropriate safety goggles
	Head Protection	Projectiles	Face shield (as necessary)
	Trauma	Projectiles, point of operation, flying chips & sparks, improper use and operation	Situational awareness, PPE, protective clothing, machine guards, manufacturer's instructions strictly followed
	Foot Injury	Drop object on foot	Safety shoes
	Hand Injury	Point of operation, in-going nip points, rotating parts, flying chips and sparks	Machine guards, situational awareness
	Fire	Sparks	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from machine area

**PPE Required:**

- Protective Clothing (optional)
- Safety Shoes/ Boots
- Goggles/Safety Glasses w/side shield
- Respirators (if needed)
- Face Shield (as necessary)

**Hazard Analysis: Propane Torch (14oz to 20oz Propane Cylinder)**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Inhalation	Hazardous fumes, gases, dusts	Appropriate natural or mechanical ventilation, and disposable respirators, as required
	Eye Injury	Projectiles, fumes, dusts, flashes	Goggles, face shield, appropriate noncombustible or flame-proof screens
	Trauma	Projectiles, burns	Situational awareness, PPE
	Foot Injury	Drop object on foot	Wear safety shoes
	Fire	Heat, sparks, slag	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from area

**PPE Required:**

- Gloves
- Safety Shoes/Boots
- Goggles/Safety Glasses
- Respirator (if needed)
- Protective Clothing (optional)

**Hazard Analysis: Sewer Snake**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Trauma	Contact with moving parts	Situational awareness, safety shoes
	Electrical Shock	Improper operations and maintenance, improper grounding	Strictly follow manufacturer's instructions, proper grounding
	Hand Injury	Point of operation, moving parts	Gloves, situational awareness
	Eye Injury	Flying particles	Goggles/Safety glasses w/side shields
	Noise	Equipment operation	Hearing Protection
	Atmospheric hazard	Methane gas, hydrogen sulfide, oxygen deficient atmosphere	Follow Permit-Required Confined Space Alternate Entry Procedures when entering sewer manholes or lift stations

**PPE Required:**

- Safety Glasses w/side shields or Goggles
- Safety Shoes/Boots
- Gloves
- Hearing Protection

**Hazard Analysis: Shop Vac(s)**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Foot Injury	Drop object on foot	Wear safety shoes
	Electrical Shock	Improper operations and maintenance, improper grounding	Manufacturer's instructions strictly followed, proper grounding
	Eye Injury	Flying debris	Wear safety glasses w/side shields
	Noise	Equipment Operation	Use hearing protection

**PPE Required :**( PPE required to be worn during the vacuuming task when it poses a specific hazard to the user)

- Safety Glasses with side shields
- Hearing Protection
- Safety Shoes/Boots

### Hazard Analysis: Soldering Guns/Irons

Task	Hazard	Cause	Prevention
General Use	Inhalation	Fumes, vapors and gases generated during soldering	Properly ventilate work area, use respirator
	Eye Injury	Spattering	Safety glasses w/side shields/Goggles
	Skin irritation/burning	Chemical cleaner use, hot soldering iron	Review MSDS, substitute cleaner with non-toxic product, use appropriate PPE/protective clothing
	Foot Injury	Drop object on foot	Wear safety shoes
	Fire	Hot soldering iron	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from soldering area
	Electrical Shock	Improper operation and maintenance	Manufacturer's instructions strictly followed, replace worn parts
	Residual surface contamination Some fluxes contain toxic compounds (i.e. cadmium and fluorides)	Soldering with lead containing solders Toxic compounds in fluxes	Wipe down work area when finished Review MSDS, substitute with nontoxic compounds if available

#### PPE Required:

- Safety glasses w/side shields/Goggles
- Safety Shoes/Boots (for protection against dropped objects when necessary)
- Protective Clothing
- Respirators (when needed)

### Hazard Analysis: Torch, Oxygen- Acetylene

Task	Hazard	Cause	Prevention
General Use	Inhalation	Hazard fumes, gases, dusts	Appropriate mechanical ventilation, as required, respirator
	Eye Injury	Projectiles, fumes, dusts, flashes	Helmets, Safety glasses w/side shields or goggles, appropriate noncombustible or flame-proof screens
	Trauma	Projectile, burns	Situational awareness, PPE, protective clothing
	Foot Injury	Drop object on foot	Wear safety shoes
	Fire	Heat, sparks, slag	Appropriate placed fire extinguisher, remove all combustibles and fire hazards from the area

#### PPE Required:

- Protective Clothing (full sleeves, no front pockets, no cuffs, shirt left outside of pants, made of clean fire-resistant materials)
- Eye Safety Shield/Helmet with filter lens
- Respirator (Optional)
- Safety Shoes/ Boots
- Goggles/ Safety Glasses w/side shields
- Fire resistant gauntlet gloves

**Hazard Analysis: Valves (Operating)**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Eye Injury	Projectiles, fumes, dusts	Safety glasses w/side shields or goggles (for chemical piping), face shield (if needed)
	Trauma	Projectiles, impact, burns	Situational awareness, gloves, protective clothing (long sleeves/pants)
	Foot Injury	Dropped object on foot	Wear safety shoes

**PPE Required:**

- Safety Glasses w/side shields or Goggles
- Safety Shoes/boots
- Gloves protective Clothing (long sleeves/pants)
- Face Shield (if needed)

**Hazard Analysis: Vise**

<b>Task</b>	<b>Hazard</b>	<b>Cause</b>	<b>Prevention</b>
General Use	Eye Injury	Projectiles	Safety glasses with side shield or appropriate safety goggles
	Foot Injury	Drop object on foot	Wear safety shoes
	Hand Injury	Impact, penetration, compression	Gloves, situational awareness

**PPE Required:**

- Goggles/ Safety Glasses w/ side shield
- Gloves
- Safety Shoes/Boots