

UMASS AMHERST	Environmental Health and Safety	Page 1
Subject: Shop Safety (Machinery) Policy		
Number: 202		
Effective Date: March 2, 2019		
Issuing Authority: Jeffrey Hescock, Executive Director of Environmental Health and Safety and Emergency Management		
Amends or Rescinds: Update and Revised		

1.0 Purpose and Applicability

1.1 This policy has been developed in in collaboration with UMass departments and schools, as well as shop supervisors from academic and non-academic areas for the purpose of reducing the risk of injury or death to faculty, students and staff who work in a University owned shop. The requirements presented in this policy meet or exceed the requirements of federal, state and local authorities, as well as consensus and industry standards adopted by other schools and universities in the United States.

1.2 The Shop Safety Policy is applicable to any location on campus that contains hazardous machinery used for the purpose of fabricating materials, testing or conducting research including, but is not limited to machine shops, carpentry shops, art studios, scene shops, testing facilities, laboratories, etc. The method for determining the hazard level for a machine will be based on the severity of the injury it is capable of causing. The severity of injury for each type of machinery is based on Yale University's *Machine Risk Assessment* which can be found in **Appendix A**.

2.0 Definitions

Shop - any designated area where hazardous tools and machinery are used for fabricating, testing or conducting research including, but not limited to machine shops, carpentry shops, art studios, scene shops, maker spaces, testing facilities and laboratories.

3.0 Roles and Responsibilities

3.1 University Schools and Departments

Schools and departments are responsible for ensuring the safety of faculty, students and staff who use their shops. In addition, each school and department will be responsible for:

- Enlisting a qualified shop supervisor to manage the shop;
- Supporting shop supervisors on all issues regarding safety;
- Ensure that shop machinery and other equipment meets the minimum standard for safety;
- Coordinating the opening and decommissioning of their shops with Environmental Health and Safety (EH&S).

3.2 Shop Supervisors

Shop Supervisors are responsible for all aspects of safety in their shop and for implementing and enforcing this policy. In addition, shop supervisors will be responsible for:

- Providing training to students and faculty, and providing training records to EH&S;
- Ensuring that professional staff attend EH&S required training;

- Ensuring machinery and equipment are maintained in good working condition;
- Authorizing personnel to use their shop;
- Developing and enforcing shop safety rules;
- Attending Shop Safety Committee meetings;
- Reporting incidents and injuries to EH&S.

3.3 Shop Users

Shop Users include students, faculty and staff who intend to use a University owned shop. Shop Users are responsible for their own safety and for complying with the requirements of this policy. In addition, Shop Users will be responsible for:

- Completing training as prescribed by the Shop Supervisor and/or EH&S;
- Working in a safe manner;
- Working in accordance with the Shop Safety Rules;
- Following the direction of the Shop Supervisor at all times;
- Reporting damaged machinery and equipment to the Shop Supervisor.

3.4 Environmental Health and Safety (EH&S)

EH&S will be responsible for maintaining and updating this policy. In addition, EH&S will be responsible for:

- Assisting Shop Supervisors, departments and schools with the implementation of this policy;
- Providing technical expertise, as it relates to safety in the shop;
- Conducting annual safety inspections for all University owned shops and providing recommendations for deficiencies;
- Maintaining training records for EH&S provided training and Shop Supervisor training upon request;
- Coordinating and facilitating Shop Safety Committee meetings;
- Providing training to professional staff;
- Investigating accidents and injuries.

4.0 Procedure

4.1 Shop Safety Controls

The following safety controls are intended to reduce the risk of injury or death when working with hazardous machinery:

- Qualified Shop Supervisors
- Training
- Authorization
- Standard Operating Procedures
- Shop Safety Rules
- Condition of Machinery
- Access
- Shop Supervision (Student Use Shops)

4.1.1 Qualified Shop Supervisors

Each shop will employ a Shop Supervisor who will be responsible for all aspects of safety for the shop. In order to be deemed "Qualified," the Shop Supervisor must have a good working knowledge of each piece of hazardous machinery in the shop. The individual must also be capable of training others on the safe and proper use of the machinery.

4.1.2 Training

Training requirements and user access to the shop will vary based on user and department. For the purpose of this policy, the training has been broken down by the type of user.

Regardless of the type of user, training must be documented. EH&S will manage training records for all professional staff and other University employees. EH&S is available to assist shop supervisors with managing training records for student/faculty training.

Shop Supervisors are required to complete "Right to Know" and "Hazardous Waste Management" on an annual basis. Shop Supervisors are responsible for developing documented training materials and maintaining attendance sheets. EH&S will be available to import attendance records into their training database.

Faculty/Students: Shop Supervisors are responsible for training faculty and students who wish to use their shop. Each shop user must complete hands-on training for each piece of machinery he/she will be authorized to use. Trainees must also review the requirements of this policy and the Shop Safety Rules developed by the Shop Supervisor.

At a minimum, training must include the following topics:

- Review of the UMass Shop Safety Policy
- Review of Shop Safety Rules
- Tool Specific Training (hands-on)
 - Hazards and limitations
 - Guard placement and adjustments
 - Cleaning and maintenance
 - Machinery use demonstration
- Personal Protective Equipment requirements
- Any other topics the Shop Supervisor feels should be covered

To help a generic Student/Faculty Training Management Form is available in **Appendix D**.

Professional Staff includes trades groups and other employees who work in a shop as part of their job duties. EH&S will be responsible for providing health and safety-related training. Supervisors will be responsible for ensuring his/her employees attend training. Training will be dependent on the level of professional experience, but, at a minimum, will include:

- Hand and Portable Power Tools
- Machine Guarding
- Right to Know
- Hazardous Waste
- Personal Protective Equipment

4.1.3 Authorization

Authorizing access to the shop for students, faculty and staff will be left up to the discretion of the Shop Supervisor. Authorization will be contingent upon several factors including training, experience and behavior. The shop supervisor also has the authority to revoke authorization to anyone who fails to meet the requirements of their shop safety rules and this policy or demonstrates behavior that could impact their safety and/or the safety of other shop users.

The Shop Supervisor will maintain a list of authorized users either in writing or electronically.

4.1.4 Standard Operating Procedures

Each piece of equipment must have a "Standard Operating Procedure" (SOP) posted on it or next to it. The SOP will provide safe operating information specific to the machinery. Newer machines will typically come with SOP's installed by the manufacturer and are usually titled "WARNING" or "CAUTION." Generic SOP's for common types of machinery are available through EH&S or can be developed by the Shop Supervisor.

4.1.5 Shop Safety Rules

Each shop is responsible for having its own shop safety rules. These rules must be posted in an area of the shop that is visible to shop users. At a minimum, shop safety rules can include:

- Restricted Access To Shop
- Hours of Operation
- No Food/Drink
- Clothing/Shoes
- Personal Protective Equipment
- Hair Tied Back
- One Person Per Machine
- Sleeves Rolled Past Elbows
- Cleaning and Housekeeping
- Do Not Leave Tools Unattended
- First Aid Kit Location

A generic "UMass Shop Safety Poster" is available in **Appendix B**.

4.1.6 Condition of Machinery

Machinery and other equipment must be in good working condition and meet the minimum safety requirements for guarding required by the Occupational Safety and Health Administration and the manufacturer. If a piece of machinery does not meet these requirements, it will be tagged out of service until it can be repaired or replaced. Examples of proper guarding for common shop machinery can be found in **Appendix C**, *Shop Equipment Self-Assessment Guide*.

4.1.7 Access

Every shop must develop a method for controlling the access of unauthorized personnel into their shop. Acceptable methods for controlled access includes:

- **Lock and Key:** Keys should only be issued to the Shop Supervisor, Shop Monitors and Building Maintenance personnel.

- **Card Key:** Card key access can be given to anyone who has been authorized by the shop supervisor. Card key systems should be programmed to account for the shop's hours of operation (i.e., shop user cards will not work after a set time when the shop is closed).
- **Power Isolation:** Power can be locked for the entire shop or at each piece of equipment. *Please note that isolating the power at a circuit breaker is not an acceptable method for locking out power and should not be done. A separate disconnect switch or control system may be used.*

The type of access control used will be left up to the discretion of the department and/or Shop Supervisor. Signage deterring unauthorized individuals from entering the shop will also be installed. At a minimum, the language on the sign will read:

NOTICE: Machine Shop, Authorized Personnel Only

4.1.8 Shop Supervision (Student Use Shops)

Students may not work with hazardous machinery alone. The Shop Supervisor will determine what level of supervision is necessary to ensure student safety. The following are examples of how supervision can be implemented:

- **Buddy System:** When students will be working in the shop with low hazard machinery only.
- **Trained Monitors:** The Shop Supervisor may choose to identify certain students (excluding undergrads) to remain in the shop when he/she is not there. In these situations, the Shop Supervisor may provide additional training for the monitors and/or restrict the use of certain high hazard pieces of machinery.
- **Full Supervision:** The shop is only open when the Shop Supervisor is present to supervise users.

Ultimately, it is the responsibility of the Shop Supervisor to determine what level of supervision is required for his/her shop.

5.0 Key References

- 5.1 Yale University's "**Machine Risk Assessment**" developed by Yale University.
- 5.2 Occupational Safety and Health Administration (OSHA) "**Guide for Protecting Workers from Woodworking Hazards**" Small Business Safety Management Series, US Department of Labor, OSHA 3157 1999
- 5.3 Occupational Safety and Health Administration (OSHA) CFR 1910.212 "**Machinery and Machine Guarding**" Requirements for all machine
- 5.4 Stronghold Safety Engineering. "**Machine Self-Assessment**" checklist
<https://www.strongholdsafety.com/>

Device Class	1	2	3	4	5
Power	Low power hand / small bench tools (2 - 4 amp @ 120 VAC, < 9V cordless)	Medium power tools (¼ to ½ hp) (< 10 amp @ 120 VAC, 14-18V cordless); specialized enclosed NC- computer tools	Powerful portable and small benchtop tools (> ½ hp) (10-15 amps @ 120 V AC, 24V-36V portable, pneumatics, hydraulics)	Light industrial tools (typically benchtop, < ½ hp, pneumatics, hydraulics)	Large industrial tools (manual and NC-controlled) (some of these tools may be off-limits to any student use) Highest hazard tools in bold
Common Examples	<ul style="list-style-type: none"> • Dremel tool • Cordless drills under 18V • Palm sanders • Soldering irons and guns • Heat guns • Hot melt glue guns • Sewing machines • 3d printers 	<ul style="list-style-type: none"> • Jig saw • 3/8" hand drill • Corded devices < 1/3 hp • 18V-24V cordless drill • Laser cutters / engravers • Thermal foam cutters 	<ul style="list-style-type: none"> • Circular saw • Belt sander • Framing nailer • ½ hp geared drill • Reciprocating saw • > 18V cordless tools • Chop / miter saws • Routers • Mini-lathe • Angle grinders • Printing presses 	<ul style="list-style-type: none"> • Small bandsaw • Small drill press • Small/benchtop milling machines • Small/benchtop lathes • Belt/disc sander • Horizontal saw • Scroll saw • Planer, jointer • Bench grinder • SawStop-style tablesaw 	<ul style="list-style-type: none"> • Full sized milling machine • Full sized metal lathe • Table saw (non-SawStop) • Radial arm saw • Large drill press • Large band saw • Surface grinder • Large jointer/planer • Shaper/moulder • Power shear
Shop Access Control	By permission of Shop Supervisor and/or Monitor	By permission of Shop Supervisor and/or Monitor	All student shops – ID Card	All student shops – ID Card	All student shops – ID Card
Tool Use Restrictions and Oversight	<ul style="list-style-type: none"> • Performed in shops or designated approved locations, i.e. theater 	<ul style="list-style-type: none"> • Undergrads - buddy system 	<ul style="list-style-type: none"> • Undergrads – monitored • Grads – buddy system 	<ul style="list-style-type: none"> • Undergrads – monitoredⁱ • Grads – buddy system 	<ul style="list-style-type: none"> • Undergrads – only under professional supervisionⁱⁱ after extensive training • Grads – buddy system • Emergency self-alert devices for low occupancy shops / times

ⁱ “Monitors” are experienced graduate students or higher with full authority over shop use and control who have been recommended by the Shop Supervisor and completed required safety training.

“Supervisors” are staff or faculty with professional-level training and experience in applicable tool set-up, use, and maintenance

Device Class	1	2	3	4	5
User Training	<ul style="list-style-type: none"> • Introduction to shop safety and individual tools by shop supervisor / manager • Directions in manual or on wall postings • Required to read operator manual 	<ul style="list-style-type: none"> • Introduction to shop safety and individual tools by shop supervisor / manager • Signed agreement regarding code of conduct and list of tools approved for use 	<ul style="list-style-type: none"> • Basic shop safety orientation by shop supervisor / manager • Individual tool instruction • Demonstrate proficiency by performing certain operations to specified accuracy • Signed agreement regarding code of conduct and list of tools approved for use 	<ul style="list-style-type: none"> • Basic shop safety orientation by shop supervisor / manager • Individual tool instruction • Hands-on use training and experience • Demonstrate proficiency by performing certain operations to specified accuracy • Signed agreement regarding code of conduct and list of tools approved for use 	<ul style="list-style-type: none"> • Basic shop safety orientation by shop supervisor / manager • Individual tool instruction • Extended hands-on use training and experience • Demonstrate proficiency by performing certain operations to specified accuracy • Signed agreement regarding code of conduct and list of tools approved for use
Power	Low power hand / small bench tools (2 - 4 amp @ 120 VAC, < 9V cordless)	Medium power tools (¼ to ½ hp) (< 10 amp @ 120 VAC, 14-18V cordless); specialized enclosed NC-computer tools	Powerful portable and small benchtop tools (> ½ hp) (10-15 amps @ 120 V AC, 24V-36V portable, pneumatics, hydraulics)	Light industrial tools (typically benchtop, < ½ hp, pneumatics, hydraulics)	Large industrial tools (manual and NC-controlled) (some of these tools may be off-limits to any student use) Highest hazard tools in bold
Monitor / Supervisor Training	<ul style="list-style-type: none"> • Tool experience 	<ul style="list-style-type: none"> • Tool experience 	<ul style="list-style-type: none"> • Tool experience • Yale EHS shop safety training class for monitors and supervisors • First aid / CPR 	<ul style="list-style-type: none"> • Extensive tool experience-documented • Yale EHS shop safety training class for monitors and supervisors • First aid / CPR 	<ul style="list-style-type: none"> • Professional-level experience-documented • Yale EHS shop safety training class for monitors and supervisors • First aid / CPR
Tool Access Controls	Locked cabinet (Tool key / code lockout for 3d printers)	Locked cabinet (Tool key / code lockout for laser or thermal foam cutters)	Locked cabinet	Tool power lockout (for tiered access shops)	Tool power lockout (for tiered access shops)
Remote Monitoring (Future Enhancement)	As desired	As desired	(Cameras in shop)	(Cameras in shop)	(Cameras in shop)



MACHINE SHOP SAFETY RULES

SHOP NAME _____

HOURS OF OPERATION:

Sun	Mon	TUE	WED	THR	FRI	SAT
_____	_____	_____	_____	_____	_____	_____

ACCESS TO THE SHOP DURING NON-HOURS OF OPERATIONS IS STRICTLY PROHIBITED

- Tools and Machines may only be used by **AUTHORIZED PERSONNEL**
- Only work with tools and machines that you have been authorized to use
- Do not use equipment if you are using any medication or under the influence of drugs, alcohol, etc.
- **NEVER** work in the shop alone
- No loose clothing including ties, necklaces, floppy sleeves, jewelry, etc.
- Long hair **MUST** be tied back
- Safety glasses **MUST** be worn at all times
- Wear non-slippery, thick, leather work shoes, preferably rubber-soled
- Open-toed footwear is not permitted in the shop
- Safety guards **MUST** be in place at all times, ensure guides and fences are tight
- Report damaged safety guards, machines and tools to the Shop Supervisor
- Report unsafe issues to the Shop Supervisor
- Keep your work area clean, do not place tools and materials on the machine table
- Put tools away when you are done using them
- **NEVER** leave tools unattended
- Only one person may work on a machine at a time
- Keep blades covered as much as possible
- **NEVER** push a cutter towards any part of your body
- **NEVER** make heavy cuts with planers, jointers, and routers
- Plywood and particleboard must **NOT** be worked with the jointer or planer
- Do not work small pieces on power machinery use hand tools
- Always secure the work piece with clamps or a vise
- **NEVER** remove metal chips, turnings, or shavings with your hands
- **NEVER** use compressed air without a safety nozzle to clean machines or clothing
- No running or horseplay
- No eating in the shop area
- Always follow the Shop Supervisor's directions
- Report **ALL** injuries (even small ones) to the Shop Supervisor or Facility Manager
- The First Aid Kit is located _____
- The Eyewash Station/Flush is located _____

Shop Supervisor _____ Phone _____

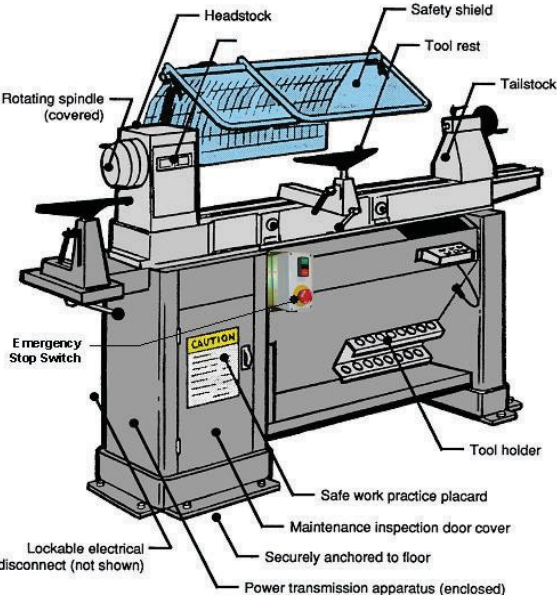
Facility Manager _____ Phone _____

Provided below are Self-Assessment Guides for the following Shop Equipment:

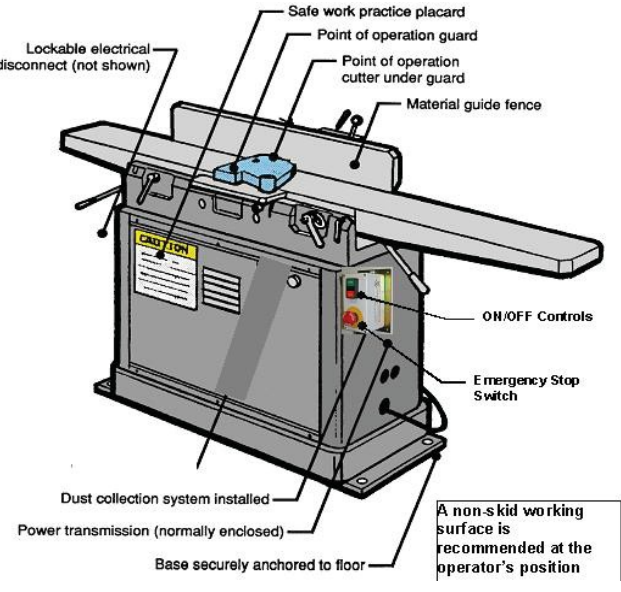
- Pedestal / Bench Grinder Survey
- Wood Lathe Survey
- Jointer Survey
- Metal Lathe Survey
- Vertical Mill Survey
- Wood Planer Survey
- Vertical Belt Sander Survey
- Vertical Spindle Sander Survey
- Belt / Disc Sander Survey
- Vertical Band Saw Survey
- Horizontal Band Saw Survey
- Abrasive Chop Saw Survey
- Panel Saw Survey
- Radial Arm Saw Survey
- Scroll Saw Survey
- Table Saw Survey
- Hydraulic Press

Pedestal / Bench Grinder Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Is the work light properly protected against impact and shatter resistant?				
2. Are the eye shields clean and in working order?				
3. Are tool rests adjusted no more than 1/8" from the wheel and tongue guards 1/4" from wheel?				
4. Are the electrical system wires, and plug ends acceptable?				
5. Can the machine be securely isolated from its power source?				
6. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
7. Does the machine have a latching, red, mushroom shaped E-stop that controls the motor?				
8. Does machine have a proper dust collection system?				
9. Is the coasting time after shutdown acceptable?				
10. Does the machine have a high-friction coating at the operator's position on the floor?				
11. Is the machine secured to prevent moving or tipping?				

Notes _____

Wood Lathe Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Does the machine have a safety shield that extends the entire length of the bed?				
2. Is the power transmission system guarded correctly?				
3. Is the left end of the spindle properly guarded?				
4. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
5. Does the machine have a latching, red, mushroom shaped E-stop that controls the motor?				
6. Are the electrical system, wires, and plug ends acceptable?				
7. Is the work light (if installed) properly protected against impact and shatter resistant?				
8. Is the machine secured to prevent moving or tipping?				
9. Does the machine have a high-friction coating at the operator's position on the floor?				

Notes

Jointer Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Does the point of operation (pork chop) guard function correctly?				
2. Is the power transmission system guarded correctly?				
3. Does the jointer have all OEM knobs, rods, or handles?				
4. Is the rear part of the cutter head guarded correctly?				
5. Are the electrical system, wires, and plug ends acceptable?				
6. Is the work light (if installed) properly protected against impact and shatter resistant?				
7. Can the machine be securely isolated from its power source?				
8. Does the machine have a latching, red, mushroom shaped E-stop that controls the motor?				
9. Is the machine secured to prevent moving or tipping?				
10. Does the machine have a high-friction coating at the operator's position on the floor?				
11. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				

Notes

Metal Lathe Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Does the machine have a chip/coolant shield that travels with the point of operation?				
2. Does the machine have a chuck shield?				
3. Does the machine have a lead screw guard & warning sign?				
4. Does the machine have a spring loaded chuck key and chuck wrench for every chuck?				
5. Are the electrical system, wires, and plug ends compliant?				
6. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
7. Does the machine have a latching, red, mushroom shaped E-stop that controls the spindle motor?				
8. Is the power transmission system properly guarded?				
9. Can the machine be securely isolated from its power source?				
10. Does the machine have a high-friction coating at the operator's position on the floor?				
11. Is the machine secured to prevent moving or tipping?				

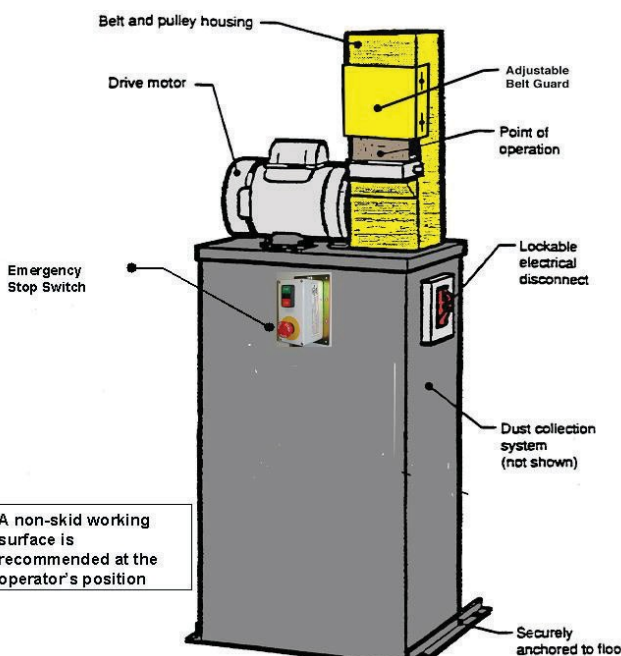
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Vertical Mill Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Is the power transmission system properly guarded?				
2. Is the draw bar properly covered?				
3. Is a red, mushroom shaped E-Stop installed that controls the spindle and the table drives?				
4. Does the machine have a chip/coolant shield?				
5. Are the electrical system, wires, and plug ends compliant?				
6. Is the work light (if installed) properly protected against impact and shatter resistant?				
7. Can the machine be securely isolated from its power source?				
8. Is the machine secured to prevent moving or tipping?				
9. Does the machine have a high-friction coating at the operator's position on the floor?				
10. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				

Notes

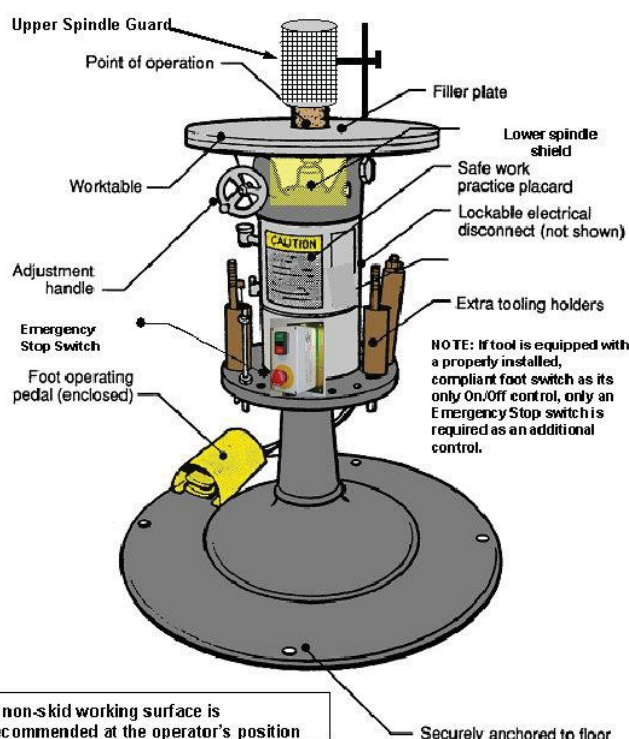
Wood Planer Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Is the power transmission system properly guarded?				
2. Does the machine have a point of operation guard (both front and rear)?				
3. Is the coasting time after shutdown compliant?				
4. Are the electrical system, wires, and plug ends compliant?				
5. Does the machine have a latching, red, mushroom shaped E- stop that controls the motor?				
6. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
7. Does the machine have a high-friction coating at the operator's position on the floor?				
8. Is the machine secured to prevent moving or tipping?				

Notes

Vertical Belt Sander Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Is the unused portion of the belt guarded above the worktable?				
2. Is the unused portion of the belt guarded below the worktable?				
3. Are the electrical system, wires, and plug ends acceptable?				
4. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
5. Can the machine be securely isolated from its power source?				
6. Does the machine have a latching, red, mushroom shaped E-stop that controls the motor?				
7. Is the machine secured to prevent moving or tipping?				
8. Does the machine have a high-friction coating at the operator's position on the floor?				

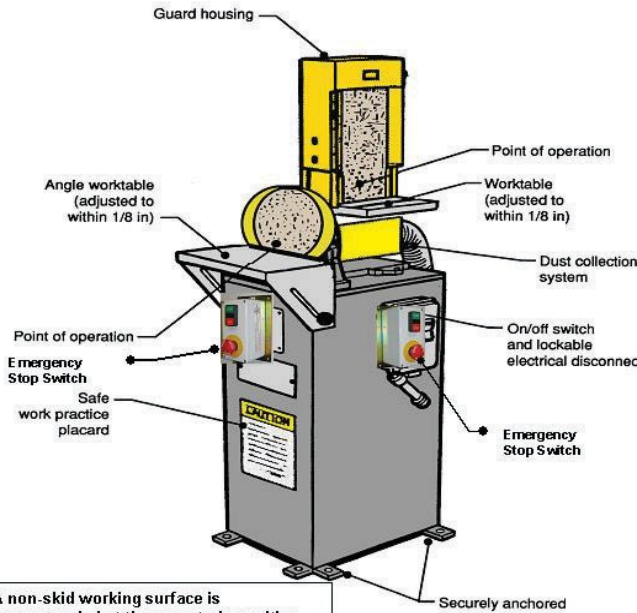
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Vertical Spindle Sander Survey	
Machine Owner	Worksite
Surveyor's Name	Date of Survey
Supervisor's Name	Room Name or No.
Machine Manufacturer	
Model #	Serial No.
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3
Horsepower	Full Load Amps
Machine Frame Type	Maximum Spindle Diameter
Pedestal Bench Cabinet	3" or 6"

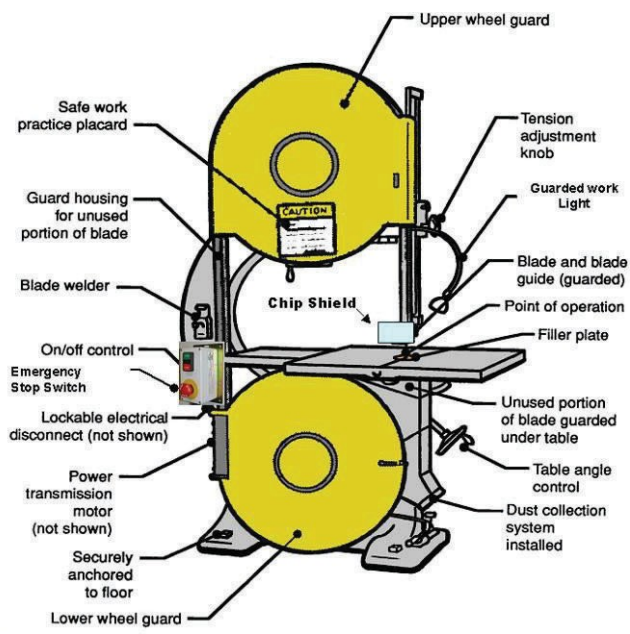


	Yes	No	N/A
1. Does the machine have a spindle guard that covers the unused upper part of the spindle?			
2. Does the machine have a lower spindle guard in front?			
3. Does the machine have a lower spindle guard in rear?			
4. Is the power transmission system properly guarded?			
5. Are the electrical system, wires, and plug ends acceptable?			
6. Can the machine be securely isolated from its power source?			
7. Does the machine have a latching, red, mushroom shaped E- stop that controls the motor?			
8. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)			
9. Does the floor have a high-friction coating at the operator's position			
10. What type of upper spindle guard is best for this machine?			
A- Floor Mounted - for pedestal type machines that are secured to floor.			
B - Pedestal Mounted - for pedestal style that are not secured to floor.			
C - Table Mounted - for pedestal or cabinet type machines			

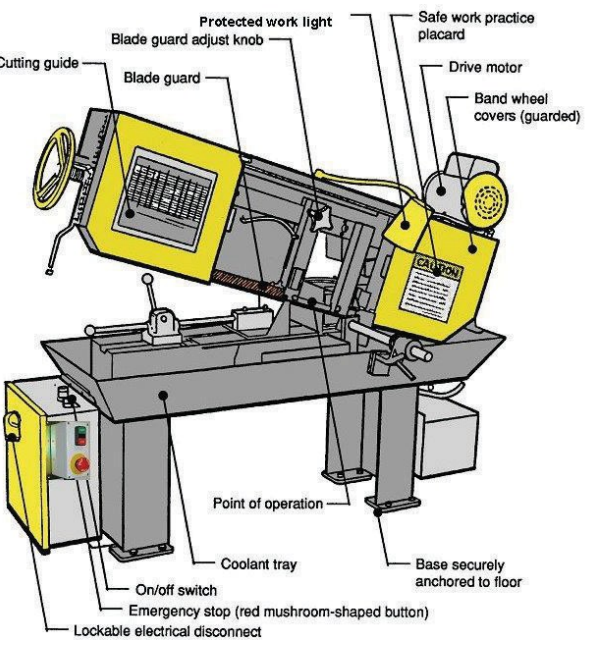
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Belt / Disc Sander Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Does the machine have an upper disc guard?				
2. Does the machine need a lower disc guard?				
3. Does the machine have an upper belt guard?				
4. Does the machine have a lower belt guard?				
5. Is the power transmission system properly guarded?				
6. Does the machine have a latching, red, mushroom shaped E-stop that controls the motor?				
7. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
8. Are the electrical system, wires and plug ends compliant?				
9. Is the machine secured to prevent moving or tipping?				
10. Does the machine have a high-friction coating at both operators' positions on the floor?				

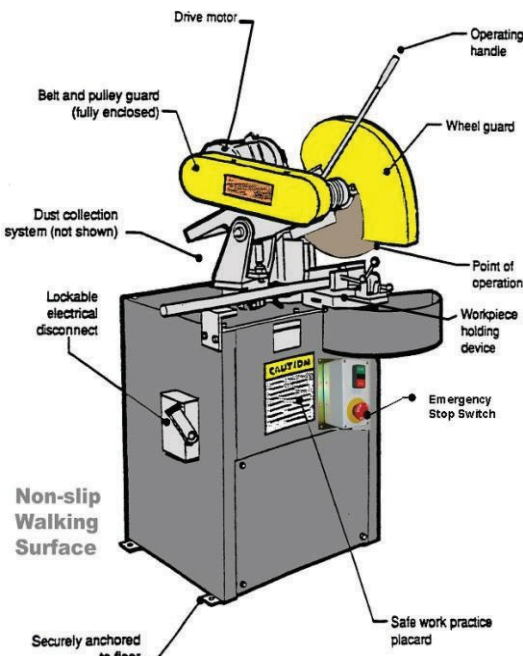
Notes

Vertical Band Saw Survey		 <p>A non-skid working surface is recommended at the operator's position</p> <p>Note: Ensure that the proper blade is used for the material being processed. Never exceed the rated speed of the saw blade. Avoid mixing incompatible dusts.</p>		
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Are the wheel door locks and latches functional?				
2. Does the machine have a chip shield?				
3. Is the unused portion of the blade guarded above the work table?				
4. Is the unused portion of the blade guarded below the work table?				
5. Is the machine's table insert in good condition?				
6. Are the electrical system, wires and plug ends acceptable?				
7. Does the machine have a latching, red, mushroom shaped E-stop that controls the motor?				
8. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
9. Is the coasting time after shutdown acceptable?				
10. Does the machine have a high-friction coating at the operator's position on the floor?				
11. Is the machine secured to prevent moving or tipping?				
12. Are the bandsaw wheels fully enclosed?				


Notes

Horizontal Band Saw Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Are the bandsaw wheels that carry the blade fully enclosed?				
2. Is the power transmission system that drives the blade guarded correctly?				
3. Is the unused portion of the blade guarded ahead of the upper blade guides?				
4. Is the unused portion of the blade guarded beyond the lower blade guides?				
5. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
6. Are the electrical system, wires and plug ends compliant?				
7. Does the saw have a latching, red, mushroom shaped E-stop that controls the motor?				
8. Can the machine be securely isolated from power?				
9. Does the machine have a high-friction coating at the operator's position on the floor?				
10. Is the machine secured to prevent moving or tipping?				

Notes

Abrasive Chop Saw Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Is the unused portion of the blade guarded?				
2. Is the blade guard functioning correctly?				
3. Does the saw return to its starting position correctly?				
4. If not trigger operated, does the machine have an emergency stop switch?				
5. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
6. Can the machine be securely isolated from its power source?				
7. Are the electrical system, wires and plug ends compliant?				
8. Does the machine have a high-friction coating at the operator's position on the floor?				
9. Is the machine secured to prevent moving or tipping?				

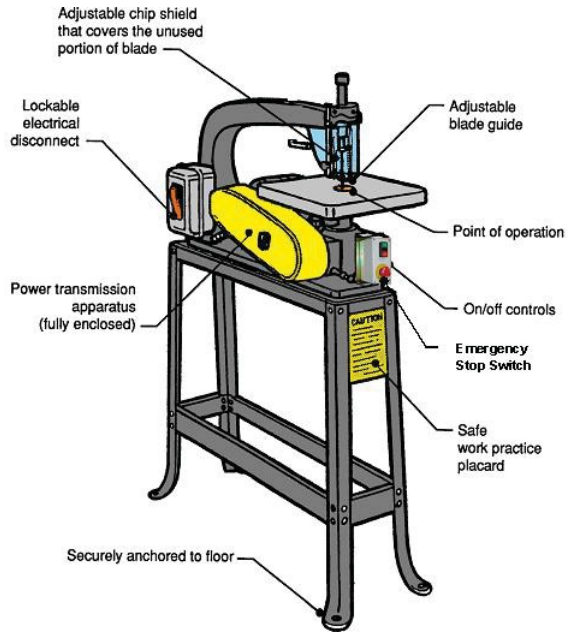
Notes

Panel Saw Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Does the machine have a trough guard?				
2. Does the saw return to its starting position automatically?				
3. If the "lock on" button is present, does the saw have an E-Stop?				
4. If the "lock on" button is present, does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
5. Are the electrical system, wires and plug ends acceptable?				
6. Can the machine be securely isolated from its power source?				
7. Does the machine need high friction coating at the operator's position?				
8. Is the machine secured to prevent moving or tipping?				

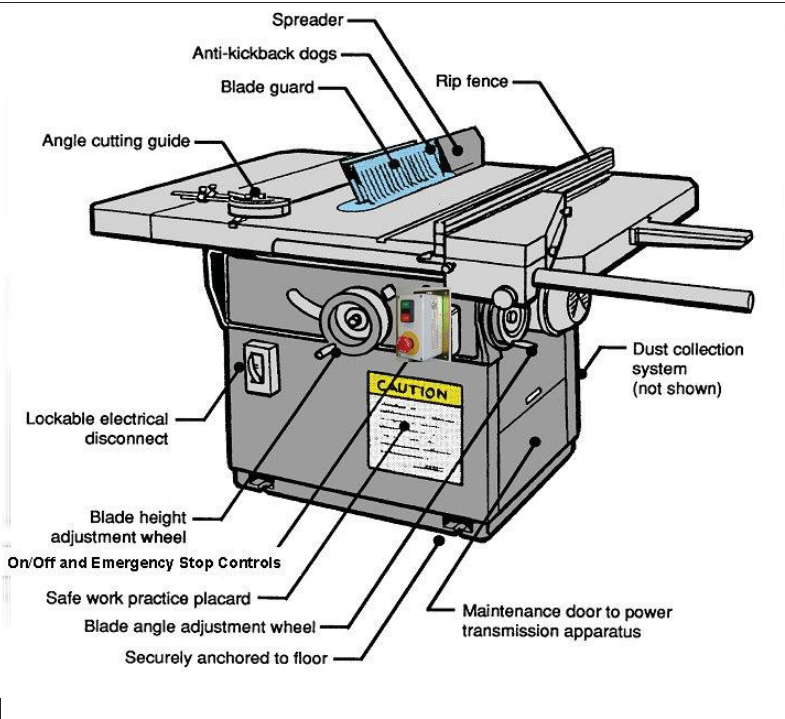
Notes

Radial Arm Saw Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Does the carriage travel easily in both directions?				
2. Does the saw return gently to its starting position when released?				
3. Is the hood guard in good working condition?				
4. Is the hood guard easily adjustable?				
5. Is the hood guard properly labeled "Danger: Do Not Rip or Plough From This End"?				
6. Does the machine have a lower blade guard on both sides of the blade?				
7. If used for ripping lumber, does the machine have an anti-kickback device?				
8. Does the machine have a latching, red, mushroom shaped E-stop that controls the motor?				
9. Does any part of the blade travel over the edge of the table toward the operator?				
10. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
11. Are the electrical system, wires and plug ends acceptable?				
12. Can the machine be securely isolated from its power source?				
13. Does the machine have a high friction coating at the operator's position?				
14. Is the machine secured to prevent moving or tipping?				

Notes

Scroll Saw Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Are the power transmission components guarded?				
2. Does machine have OEM finger guards?				
3. Is the machine's table insert in good condition?				
4. Does machine have a chip shield?				
5. Does the machine have a lower blade guard?				
6. Does the machine have a latching, red, mushroom shaped E-stop that controls the motor?				
7. Are the electrical system, wires and plug ends acceptable?				
8. Can the machine be securely isolated from its power source?				
9. Is the machine secured to prevent moving or tipping?				
10. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				

Notes

Table Saw Survey				
Machine Owner	Worksite			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Does the machine have an anti-kickback/splitter?				
2. Does the machine have a blade guard that maintains contact with the stock?				
3. Is the machine's table insert in good condition?				
4. Is the power transmission system guarded correctly?				
5. Are the electrical system, wires, and plug ends compliant?				
6. Does the machine have all OEM knobs, rods and handles?				
7. Does the machine have a latching, red, mushroom shaped E-stop that controls the motor?				
8. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
9. Is the coasting time of the machine acceptable?				
10. Does the machine have a high friction coating at the operator's position?				
11. Does the machine have a high-friction coating at the take-out position on the floor?				
12. Is the machine secured to prevent moving or tipping?				

Notes

Hydraulic Press				
Machine Owner	Work Site			
Surveyor's Name	Date of Survey			
Supervisor's Name	Room Name or No.			
Machine Manufacturer				
Model #	Serial No.			
Supply Voltage	No. of Supply Phases (Circle One) 1 or 3			
Horsepower	Full Load Amps			
		Yes	No	N/A
1. Does the machine have a method of protecting the operator from ejected components?				
2. Does the machine have a method of protecting the operator from crush hazards on all sides of the point of operation?				
3. If the machine is foot actuated, is the foot pedal or switch covered to protect from unintentional operation?				
4. Is the frame and bed rated for the tonnage of the hydraulic pressing cylinder?				
5. Are all hydraulic hoses and fittings properly rated for the application?				
6. Does the machine have all OEM knobs, rods, or handles?				
7. Are the electrical system, wires, and plug ends acceptable?				
8. Does it have a system that will prevent automatic restart after power outage? (Power outage protection)				
9. Does the machine have a compliant start/stop pushbutton controls and a latching, red, mushroom shaped, emergency stop pushbutton for the pump motor?				
10. Can the machine be securely isolated from its power source?				
11. Is the work light properly protected against impact and shatter resistant?				
12. Does the machine have a high-friction coating at the operator's position on the floor?				
13. Is the machine secured to prevent moving or tipping?				
14. Are there any noticeable leaks in the hydraulic system?				

Notes



Student Name _____
Date _____

Shop Safety Training Form

Shop Name _____
Hours of Operation _____

Shop Supervisor _____
Phone _____
Email _____

Shop dress requirements: To ensure your safety eye protection must be worn at ALL times when you are in the shop. No loose clothing including ties, necklaces, floppy sleeves, jewelry, etc. Long hair must be tied up in a bun. Shoes must be close toed. Pants must be worn (no shorts) and long sleeves must be roll up past the elbows.

Shop Rules

1. Think through the entire job before starting. Ask the Shop Supervisor if you are ever unsure for any reason
2. Tools and Machines may only be used by **AUTHORIZED PERSONNEL**; if you see unauthorized individuals in the shop, report it to the shop supervisor immediately.
3. Only work with tools and machines that you have been authorized to use. If there is a particular tool you would like to use, ask the shop supervisor.
4. Do not use equipment if you are tired, using any medication or under the influence of drugs, alcohol, etc.
5. **NEVER** work in the shop alone. The shop may only be used during normal shop hours and under direct supervision.
6. Safety guards **MUST** be in place at all times, ensure guides and fences are tight.
7. Whenever possible secure you work with a clamp, strap or other means as directed by the Supervisor. **NEVER** hold the work down with your hand.
8. **NEVER** make adjustments or modifications to the equipment unless authorized by the Supervisor. This includes moving or removing safety guards, changing belts or blades or applying lubricant.
9. Report damaged safety guards, machines and tools to the Shop Supervisor. Warn other in the shop that the machine is damaged and should not be used.
10. Keep you work areas clean; do not place tools and materials on the machine table. Chips and debris must be swept up after you are done.
11. Use compressed air (not your hands) to clean chips and debris located near blades, bits and other areas where you could be injured by using your hands. Air PSI must **NEVER** exceed 30 PSI
12. Put tools away when you are done using them; wrap up electrical cords.
13. Only one person may work on a machine at a time.
14. Keep blades covered as much as possible.
15. **NEVER** leave a machine unattended or leave materials in the machine. Remember to **REMOVE THE CHUCK KEY** before starting your work.
16. Heavy sanding or painting must be done in well ventilated area.
17. **NEVER** push a cutter towards any part of your body
18. **NEVER** make heavy cuts with planers, jointers, and routers
19. Plywood and particleboard must **NOT** be worked with the jointer or planer
20. Do not work small pieces on power machinery use hand tools.
21. **NEVER** remove metal chips, turnings, or shavings with your hands.
22. **NEVER** use compressed air without a safety nozzle to clean machines or clothing.
23. No running or horseplay
24. No eating or drinking in the shop area
25. Report **ALL** injuries (even small ones) to the Shop Supervisor or Facility Manager
26. The First Aid Kit is located _____
27. The Eyewash Station/Flush is located _____

I have read and understand the rules and procedures outlined in this document:

Signature _____ Date: _____

Shop Safety Training – Hands on Instruction

Equipment	SOP & Safety Reviewed	Hands On Training Provided	Supervisor Initials	Date Trained
Abrasive Cut-Off Saw	<input type="checkbox"/>	<input type="checkbox"/>		
Band Saw – Horizontal	<input type="checkbox"/>	<input type="checkbox"/>		
Band Saw - Vertical	<input type="checkbox"/>	<input type="checkbox"/>		
Belt Sander	<input type="checkbox"/>	<input type="checkbox"/>		
Belt/Disc Sander	<input type="checkbox"/>	<input type="checkbox"/>		
Bench Grinder	<input type="checkbox"/>	<input type="checkbox"/>		
Break	<input type="checkbox"/>	<input type="checkbox"/>		
Chop/Miter Saw	<input type="checkbox"/>	<input type="checkbox"/>		
CNC Enclosed	<input type="checkbox"/>	<input type="checkbox"/>		
CNC Open	<input type="checkbox"/>	<input type="checkbox"/>		
Disc Sander	<input type="checkbox"/>	<input type="checkbox"/>		
Drill Press	<input type="checkbox"/>	<input type="checkbox"/>		
Horizontal Mill	<input type="checkbox"/>	<input type="checkbox"/>		
Jig Saw	<input type="checkbox"/>	<input type="checkbox"/>		
Jointer	<input type="checkbox"/>	<input type="checkbox"/>		
Lathe	<input type="checkbox"/>	<input type="checkbox"/>		
Oxy-Acetylene Torch	<input type="checkbox"/>	<input type="checkbox"/>		
Panel Saw	<input type="checkbox"/>	<input type="checkbox"/>		
Planer	<input type="checkbox"/>	<input type="checkbox"/>		
Press	<input type="checkbox"/>	<input type="checkbox"/>		
Radial Arm Saws	<input type="checkbox"/>	<input type="checkbox"/>		
Router	<input type="checkbox"/>	<input type="checkbox"/>		
Scroll Saw	<input type="checkbox"/>	<input type="checkbox"/>		
Shear	<input type="checkbox"/>	<input type="checkbox"/>		
Skill Saw	<input type="checkbox"/>	<input type="checkbox"/>		
Table Saw	<input type="checkbox"/>	<input type="checkbox"/>		
Robotic Equipment	<input type="checkbox"/>	<input type="checkbox"/>		
Vertical Mill	<input type="checkbox"/>	<input type="checkbox"/>		
Water Cutter	<input type="checkbox"/>	<input type="checkbox"/>		
Welder – Arc	<input type="checkbox"/>	<input type="checkbox"/>		
Welder-Mig	<input type="checkbox"/>	<input type="checkbox"/>		
Welder – Tig	<input type="checkbox"/>	<input type="checkbox"/>		
Welding – Plasma	<input type="checkbox"/>	<input type="checkbox"/>		
Other	<input type="checkbox"/>	<input type="checkbox"/>		