1. INTRODUCTION
Risk Management and Safety, recognizing that hazards may exist in shop areas, has developed this Metal or Woodworking Shop Policy. This Policy is intended to ensure that:

- Employees and students are provided information on how to protect themselves from shop hazards.
- Recommended maintenance is performed and standard operating procedures are in place for machinery and equipment use.
- Only persons trained in proper operating methods and safety features are allowed to use a specific piece of equipment.
- Shops adopt consistent rules across different departments and different buildings.
- All work is performed in accordance with applicable federal, state, and local regulations.

2. SCOPE
This policy applies to all departments that have a work area with fixed and portable metal or wood-working machinery where the primary function is to fabricate or machine materials. This includes shops for the purpose of teaching as well as shops for the purpose of performing work for research. Typical shops have at least one employee who oversees shop use. Common shop equipment includes: band saws, table saws, mills, lathes, drill presses, bench grinders, planers, welding and cutting equipment.

Areas with only a few pieces of machinery or temporary construction sites with machinery are not considered a “shop”, but machine-specific requirements for safe use of the machinery still apply.

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4. DEFINITIONS

**Metal or Woodworking Shop**
A work area with fixed or portable metal or wood-working machinery where the primary function is to fabricate or machine materials. This includes shops for the purpose of teaching as well as research.

**Shop Safety Coordinator**
Person who oversees use of a metalworking or woodworking shop. The Shop Safety Coordinator determines who the authorized users of their shop will be, provide training for Shop Users, and ensure that the shop within their responsibility stays in proper working order. Additional Responsibilities are listed in Section 5 of this Policy.

5. RESPONSIBILITIES

<table>
<thead>
<tr>
<th>Responsible Party</th>
<th>List of Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department Manager / Supervisor</td>
<td>1. Provide the resources necessary to meet the expectations of the metal or woodworking shop policy.</td>
</tr>
<tr>
<td>Risk Management and Safety</td>
<td>1. Provide training to shop safety coordinators on topics such as Hearing Conservation, Hazard Communication, etc. 2. Perform periodic shop inspections to ensure that the requirements of this Policy are being met. 3. Coordinate meetings among Shop Safety Coordinators in order to communicate regulatory changes, provide needed training, share ideas across campus shops.</td>
</tr>
<tr>
<td>Shop Safety Coordinator</td>
<td>1. Perform a Shop inspection once per semester to ensure that the requirements of this Policy are being met. 2. Maintain the owner’s manuals or instructions for each piece of equipment used in their respective shop and make the owner’s manuals available. 3. Provide training to shop users regarding topics such as emergency response, dress code and personal protective equipment, shop specific safety rules, review of machine specific operating methods and safety features. 4. Perform personal protective equipment site assessments in</td>
</tr>
</tbody>
</table>
consultation with Risk Management and Safety. Complete personal protective equipment knowledge retention certifications for all “staff” employees working in their shop.

5. Ensure that equipment in need of repair or service is taken out of service and that repairs and service are made by authorized maintenance personnel.


7. Maintain records such as training, shop safety inspection checklists, log of shop users with permission to work alone, maintenance and repair records.

8. Designate a shop monitor if necessary based upon the person’s knowledge, experience, and adherence to shop safety rules. Provide this shop monitor with authority to stop any practices that violate shop safety rules.

9. Post Shop Safety Rules

### Shop Employee / Shop User
1. Follow the requirements stated in this Policy.
2. Participate in activities such as machine specific training and shop safety inspections.
3. Help maintain a safe workshop by performing proper housekeeping, storage practices, and allowing time to clean your work area.
4. Bring unsafe equipment or unsafe conditions to the attention of the Shop Safety Coordinator immediately.

### Shop Monitor
1. Provide access for Undergraduates to work in the shop on weeknights or weekends.
2. Set an example for other shop users by strictly adhering to shop dress code and personal protective equipment expectations.
3. Provide advice or assistance to shop users while placed in charge.
4. Enforce shop safety rules with the authority to stop work or close a shop for non-compliance with shop safety rules. Violations are to be referred to the faculty member and shop safety coordinator.

### 6. PROcedures

#### 6.1 Emergency Response

6.1.1 The location of the nearest Emergency Response items shall be known by the Shop Safety Coordinator and communicated to all Shop Users:

- a. Building Emergency Evacuation Map (from this map determine the building evacuation assembly area and the building tornado shelter area.)
- b. Campus phone in order to report an emergency
- c. Automated External Defibrillator (AED)
- d. First Aid Kit
- e. Fire Extinguisher
- f. Emergency Eye Wash
g. Emergency Stop Button, Circuit Breaker, or other means of disabling power to
machinery.
6.1.2 Machinery shall be positioned so that a clear and safe operating area is maintained
for each machine.
6.1.3 Shop layout and machinery placement must not interfere with clear access to
emergency exits, or emergency equipment such as fire extinguishers or electrical
disconnects.

6.2 Equipment Access and Hours of Use
6.2.1 Shop safety coordinators are to log those graduate students, teaching assistants,
post doctorates, faculty members, staff members who they have given permission
to work alone, or work weeknights, or weekends. The shop safety coordinator is
to be provided information such as the project being worked on, equipment that
will be needed, and a timeframe for completion.
6.2.2 Undergraduates are not to work alone in a University Shop. Undergraduate shop
work is to be supervised by someone such as the faculty member, shop safety
coordinator, or designated shop monitor. Exception: Undergraduates may work
unsupervised in a shop for tasks which do not involve the use of power tools such
as gluing, painting, or staining. Undergraduates must understand that their work is
limited when working unsupervised.
6.2.3 University Shops are closed to undergraduate students between the hours of 12:00
AM – 05:00 AM regardless of the scope of work being performed.
6.2.4 Methods such as locking shop doors and turning off shop circuit breakers shall be
considered while shops are closed to further ensure unauthorized access and use
of equipment.

6.3 Dress Code and Personal Protective Equipment
6.3.1 Open toed shoes such as sandals are not permitted in a Shop environment.
6.3.2 Long pants must be worn while performing jobs which create sparks such as
welding or grinding. Long pants are also required when handling chemicals.
6.3.3 Short sleeved shirts are recommended. Loose shirt material such as long sleeves
or shirt tails must be tucked in, rolled up, or otherwise secured to prevent contact
with moving parts.
6.3.4 Loose material such as neck ties, scarves, hood strings are not allowed in Shops.
6.3.5 Hair below the collar must be tied back or covered by a hat. Long beards must
also be secured or covered.
6.3.6 Shop users must remove their necklaces, bracelets, rings, watches. It is
recommended that Shops provide a wall clock for the sake of knowing the time of
day and encouraging everyone to remove their watch.
6.3.7 Safety glasses must be worn at all times while in the Shop area when power tools
or shop equipment are being used.
6.3.8 Face shields are required for tasks that produce flying objects or sparks such as
using a grinder. See “Welding/Cutting/Brazing” for additional requirements for
shops that perform these tasks.
6.3.9 Shop users must wear hearing protection when noise is being generated. Full time
staff employees who work in Shops shall be a part of the University Hearing
Conservation Program.
6.3.10 Listening to personal music devices with headphones are not permitted while using power tools as they distract from hearing warning signs such as unusual motor noises or a cutting tool that is becoming bound in the material.

6.3.11 Gloves shall not be worn near rotating equipment such as drill presses, lathes, radial arm saws. Gloves are necessary equipment for material handling tasks that could cause splinters or welding or grinding operations that could throw sparks.

6.4 Training and Authorization

6.4.1 Each person who uses shop equipment must receive training prior to use on the following topics:
- Emergency Response
- Dress Code and Personal Protective Equipment guidelines
- Shop specific rules such as hours of use and housekeeping guidelines.
- Review of machine specific operating methods and safety features (training record must be maintained).

6.4.2 New employees/students who are using shop equipment such as welding equipment, band saws, lathes, table saws, planers, etc. all require that their work be done under the direction of the Shop Safety Coordinator. The Shop Safety Coordinator shall determine how much time to spend with each new employee/student based on the Shop User’s experience and observation of their work practices. Once the Shop Safety Coordinator feels confident in the Shop User’s ability to work safely, the Shop User may work without oversight.

6.4.3 Shop Safety Coordinators must receive training in the following topics:
- Emergency Action Plan and Injury Reporting
- Lockout
- Hazard Communication
- Personal Protective Equipment
- Bloodborne Pathogens Awareness
- Hearing Conservation
- First Aid / CPR
- Hot Work Safety and Forklift Safety (these topics apply to some shops, but not all).

6.4.4 Documentation of Training includes:
- Training topic
- Date Trained
- Trainee Signature
- Trainer signature
- Training records are to be maintained at the shop for a period of 5 years.

6.5 Housekeeping/Material Handling and Storage

6.5.1 Shop Safety Coordinators are to ensure that Shop Users help keep the shop area clean and orderly.

6.5.2 Sawdust, metal chips, and other debris must be routinely cleaned from surfaces such as machinery, bench tops, and floors.

6.5.3 Food and drink inside a shop area must be limited to only a designated area which is free from items that might contaminate food such as dust, debris, paint, or chemicals.
6.5.4 Wet surfaces or slippery floors are expected to be cleaned up or addressed immediately.

6.5.5 Materials must be stored in a manner that prevents objects from falling.

6.5.6 Use shelves or cabinets as appropriate to store materials. Do not exceed the storage capacity of the shelves or cabinets.

6.5.7 Chemicals must be stored in cabinets approved for that use such as flammable cabinets or corrosive cabinets.

6.5.8 Shops are to maintain a chemical inventory and have a method of providing Material Safety Data Sheets for each chemical.

6.5.9 Rags that have been saturated with materials such as paint thinners, varnish, oils, must be stored in an approved metal can with a tight-fitting lid. Proper disposal may involve a service provided by rag service companies or uniform service companies.

6.5.10 Always change clothing that has been saturated with a flammable or combustible liquid. A number of hot surfaces or heat sources found in a shop could cause the clothing to ignite.

6.6 Rotating or Moving Parts

6.6.1 Guards or safety shields must be in place for equipment with exposed rotating or moving parts.

6.6.2 Never alter or permanently remove those guards that were provided from the machine manufacturer.

6.6.3 Follow appropriate shut down procedures and apply lockout if equipment repairs includes removal of machine guarding.

6.6.4 Ensure equipment has come to a complete stop before leaving it unattended. Never slow down equipment by contacting it with something such as scrap material.

6.6.5 Always remove chuck keys or adjustment wrenches immediately after using them and return them to their storage location.

6.6.6 Never wipe away chips or debris while the equipment is running. Never use your bare hands or fingers to remove chips.

6.7 Electrical Hazards

6.7.1 Where machinery is hard-wired into the electrical system, a disconnect must be available by either a circuit breaker or disconnect box.

6.7.2 Proper grounding must be maintained on cord-and-plug connected machinery.

6.7.3 Exposed energized electrical hazards such as missing knockout plugs, missing or broken outlet covers, damaged cords, etc., must be corrected immediately.

6.8 Equipment Repairs and Preventative Maintenance

6.8.1 Routine servicing such as blade changes, belt or pulley adjustments, cleaning, lubricating should be performed under the direction of the Shop Safety Coordinator.

6.8.2 Routine servicing can only be performed after appropriate lockout device is in place or the cord is unplugged for cord-and-plug machinery.

6.8.3 Equipment found to be in need of repair shall be taken out of service by hanging a “Do Not Use” tag from the equipment. The damaged equipment must also be disconnected from the power source by either unplugging it or placing the
disconnect in the off position and tagged. Report equipment in need of repair to the appropriate maintenance personnel responsible for the building.

6.8.4 Machinery repairs such as motor repairs, electrical repairs, or repair troubleshooting shall be performed by the appropriate maintenance trade.

6.8.5 Routine servicing of dust collection systems such as emptying sawdust or changing filters is the responsibility of the Shop. Shop Safety Coordinators shall request maintenance to perform tasks such as preventative maintenance of fan motors or electrical systems according to the recommendations of the ventilation system manufacturer.

6.8.6 Proper lockout procedures shall be followed for all servicing and maintenance of machinery.

6.9 **Welding/Cutting/Brazing**

6.9.1 Shops where hot work is a common task are designated hot work areas and are exempt from requirements of Notre Dame Fire Department’s hot work permit program.

6.9.2 Such designated hot work areas must maintain a work area free from materials such as aerosols, flammable liquids, etc. in their hot work area.

6.9.3 Fire extinguishers must be accessible and in proper working order.

6.9.4 Proper faceshield and welding lenses must be used for hot work operations.

6.9.5 Welding hoses, leads, or cables must be protected from damage and kept out of walkways.

6.9.6 Gas cylinders must be stored in a manner to prevent tip over such as chaining them in an upright position.

6.9.7 Gas cylinders in storage are to have the regulators removed and a valve cap in place.

6.9.8 Oxygen cylinders are to be stored separate from flammable gas cylinders.

6.9.9 Cutting torch hoses shall be equipped with flash back arrestors.

6.9.10 Hot work equipment shall only be ignited using a flint spark lighter. Heat from tools such as an oxy-acetylene torch can cause a lighter containing butane to explode.

6.9.11 A fire watch shall be provided for 30 minutes following the completion of all hot work.

6.9.12 Hot work may not be performed if the building’s sprinkler system is impaired.

6.10 **Portable Power Tools/Handtools**

6.10.1 Power tools are to be effectively grounded or an approved double insulated type of power tool.

6.10.2 Ground Fault Circuit Interrupter (GFCI) shall be used for power tools that could potentially be used in a wet environment.

6.10.3 Power tools / hand tools must be in good operating condition free from defects or broken parts.

6.10.4 Power tools shall be unplugged before performing service such as blade replacement, grinding wheel replacement, etc.
6.11 Shop Inspection Program
6.11.1 Shop Safety Coordinators shall perform and document an inspection once per semester to ensure that the requirements of this Policy are being met. Results of this inspection shall be documented using the attached “Shop Safety Inspection Checklist”. Inspection checklists are to be maintained by the Shop Safety Coordinator for a time frame of 4 years.

6.11.2 Shop Safety Coordinators can delegate the responsibility of performing Shop Safety Inspections down to an employee or a student for the sake of learning. The Shop Safety Coordinator must review such work being submitted and take appropriate action to address any inspection items in need of attention.

6.11.3 Risk Management and Safety shall perform a periodic Shop Safety Inspection. The inspection shall be documented using a form consistent with the “Shop Safety Inspection Checklist.” A copy shall be provided to the Shop Safety Coordinator.

6.12 Safety Committee Participation
6.12.1 Shop Safety Coordinators shall be a represented part of their Department or Building’s overall Safety Committee. The scope and overall structure of such safety committees are outlined in the University’s Health and Safety Policy.

6.12.2 As needed, Risk Management and Safety will coordinate meetings among Shop Safety Coordinators in order to facilitate sharing of ideas across different shops, meet training requirements, communicate policy changes, etc.

6.13 Contractor Use
6.13.1 Contractors hired to perform work for the University of Notre Dame shall not use University Shop Equipment to perform such work.

6.13.2 An exception to 6.13.1 would be contracted maintenance trades who maintain trade shops in the University Maintenance Center.

6.13.3 Contractors who are performing repairs or servicing University owned Shop equipment may have to operate the equipment for the sake of troubleshooting or verifying repairs.
7. RELATED DOCUMENTS

<table>
<thead>
<tr>
<th>Policy or Document</th>
<th>Web Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lockout / Tagout Policy</td>
<td><a href="http://riskmanagement.nd.edu/assets/13369/loto.pdf">http://riskmanagement.nd.edu/assets/13369/loto.pdf</a></td>
</tr>
<tr>
<td>Health and Safety Policy</td>
<td><a href="http://riskmanagement.nd.edu/assets/56685/healthandsafetypolicy.pdf">http://riskmanagement.nd.edu/assets/56685/healthandsafetypolicy.pdf</a></td>
</tr>
<tr>
<td>Personal Protective Equipment</td>
<td><a href="http://riskmanagement.nd.edu/assets/13373/ppe_001.pdf">http://riskmanagement.nd.edu/assets/13373/ppe_001.pdf</a></td>
</tr>
<tr>
<td>Hearing Conservation</td>
<td><a href="http://riskmanagement.nd.edu/assets/13366/hearing_000.pdf">http://riskmanagement.nd.edu/assets/13366/hearing_000.pdf</a></td>
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8. CONTACTS

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<thead>
<tr>
<th>Subject</th>
<th>Office or Position</th>
<th>Telephone Number</th>
<th>Office Email or URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy Clarification</td>
<td>Risk Management and Safety</td>
<td>(574) 631-5037</td>
<td><a href="http://riskmanagement.nd.edu/">http://riskmanagement.nd.edu/</a></td>
</tr>
<tr>
<td>Web Address for this Policy</td>
<td></td>
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</tr>
<tr>
<td>Emergency Response and Fire Prevention</td>
<td>Yes</td>
<td>No</td>
<td>N/A</td>
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<tr>
<td>Do shop users know the location of the nearest campus phone in order to dial 911 (Notre Dame Security Police) in the event of an emergency?</td>
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<tr>
<td>Is the location of emergency shut offs known, are they easily accessible?</td>
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<tr>
<td>Is a properly stocked first aid kit available?</td>
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<tr>
<td>Do shop users know where to gather in case of evacuation? In case of tornado?</td>
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<tr>
<td>Are exit paths free of obstructions?</td>
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<tr>
<td>Is there a fire extinguisher present that has been inspected within the last year and is easily accessible?</td>
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<td>Are oily rags stored in an approved metal can with a tight fitting lid?</td>
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<tr>
<td>Are flammable materials, aerosols, paints stored in appropriate flammable cabinets?</td>
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<table>
<thead>
<tr>
<th>Safety Administration</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Have shop users been trained on the equipment they are operating?</td>
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<tr>
<td>Are shop users current on specialized training: Ladders, Lockout, Forklift, Hearing Conservation</td>
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<tr>
<td>Do shop users have access to the Metal or Woodworking Shop Policy?</td>
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<tr>
<td>Do shop users meet the dress code requirements?</td>
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<tr>
<td>Are shop users wearing the appropriate PPE?</td>
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<tr>
<td>Is the PPE in good condition?</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Housekeeping and Storage</th>
<th>Yes</th>
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<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are all workspaces kept clean and orderly?</td>
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<tr>
<td>Is food and drink kept only in designated areas?</td>
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<td>Are light fixtures working properly, properly protected, and without damage?</td>
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<tr>
<td>Are storage shelving, cabinets, etc. anchored to prevent tip-over?</td>
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<tr>
<td>Are floors in good condition and kept dry?</td>
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<tr>
<td>Are ventilation and dust collection systems working properly?</td>
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</tbody>
</table>
## SHOP SAFETY INSPECTION CHECKLIST

<table>
<thead>
<tr>
<th>Mechanical and Electrical Safety</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is defective equipment promptly reported, taken out of service, and repaired?</td>
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<tr>
<td>Are pushbuttons and control panels for machinery properly labeled?</td>
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<tr>
<td>Are guards and safety shields in place for machines with rotating or moving parts?</td>
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<td>Are there owner’s manuals / instructions for each machine in the shop?</td>
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<tr>
<td>Are circuit breaker panels accessible with labels identifying the function of each breaker?</td>
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<tr>
<td>Are electrical cords in good condition and not run across walkways or through doorways?</td>
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<tr>
<td>Are ground fault circuit interrupters available for use in wet areas?</td>
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<tr>
<td>Do only authorized employees perform repairs?</td>
<td></td>
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<table>
<thead>
<tr>
<th>Portable Tools</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are electrical hand tools in good operating condition?</td>
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<td></td>
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<tr>
<td>Are tools free from cracks and broken parts?</td>
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<tr>
<td>Are ladders in good condition with spreaders that lock in place and safety feet at the base of the ladder?</td>
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<td>Is welding equipment properly insulated with no bare wires exposed?</td>
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<tr>
<td>Are oxy-gas welding hoses in good condition and equipped with flash back arrestors?</td>
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<tr>
<td>Are welding cylinders legibly marked?</td>
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<tr>
<td>Are welding cylinders stored upright, secured to prevent tip-over, and valve caps in place?</td>
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<tr>
<td>Are oxygen and fuel cylinders stored separately?</td>
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</tbody>
</table>

Write any additional hazards in the spaces provided

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Comments</th>
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</tbody>
</table>

**Shop Safety Coordinator:**

Name (print): __________________________ Date: ____________

Signature: __________________________

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