

<b>PPPL</b>	<b>PRINCETON PLASMA PHYSICS LABORATORY</b>	<b>PROCEDURE</b>	<b>No. ENG-048, Rev. 0 page 1 of 2</b>
<b>Subject:</b>  <b>Machine/Carpenter Shop Equipment Safety Checklists</b>	<b>Effective Date:</b>  <b>June 25, 2010</b>	<b>Initiated by:</b>  Associate Director for Engineering and Infrastructure	
	<b>Supersedes:</b>  NEW	<b>Approved:</b>  Director	

## 1.0 APPLICABILITY

This procedure is applicable to all activities on the PPPL site involving the use of machine/carpenter shop equipment and tools that are listed under Section 3.0 Attachments.

## 2.0 PURPOSE

This procedure provides requirements in the form of checklists for the performance of safety checks on all machine tools throughout the laboratory unless specifically excluded by the Responsible Line Manager (RLM). The safety checklists shall be completed monthly except for machines used less frequently than once per month. In this case the checklist will be performed prior to equipment use.

## 3.0 ATTACHMENTS

1. Attachment 1 Abrasive Wheel Grinder Safety Checklist
2. Attachment 2 Drill Press Safety Checklist
3. Attachment 3 Band Saw Safety Checklist
4. Attachment 4 Milling Machine Safety Checklist
5. Attachment 5 Lathe Safety Checklist
6. Attachment 6 Belt Sander Safety Checklist
7. Attachment 7 Circular Table Saw Safety Checklist
8. Attachment 8 Radial Arm Saw Safety Checklist
9. Attachment 9 Metal Cutting Shear Safety Checklist
10. Attachment 10 Hydraulic Press Brake Safety Checklist
11. Attachment 11 Surface Planer Safety Checklist
12. Attachment 12 List of Affected Machinery

## 4.0 PROCEDURE

Responsibility	Action
<b>Responsible Line Manager (RLM)</b>	1. Determines which machinery in which shops will be required to have the safety checks of the Attachments performed.
<b>Shop/Area Supervisor</b>	2. Ensures that all Shop equipment is listed on Attachment 12 making note of any equipment excluded by the RLM. 3. Ensures that each piece of equipment has a Property Tag attached.
<b>Responsible Line Manager (RLM)</b>	4. Approves Attachment 12 for the steps above.
<b>Shop/Area Supervisor</b>	5. Completes (or assigns an individual to complete) inspections and the steps below for the required equipment listed in Attachment 12. Note: Individual shall be qualified to operate the affected equipment.
<b>Shop/Area Supervisor or Assigned Individual</b>	a) Completes the applicable checklist (see Attachments 1 through 11) for each piece of equipment noted on Attachment 12. b) Ensures items with safety issues that can be resolved on the spot are corrected. c) Ensures all comments are recorded at the bottom of the page (checklist). d) Ensures the machine is taken out of service if all items on checklist cannot be checked with either a "Yes" or "N/A" and notifies the Shop/Area Supervisor. e) Completes Attachment 12 using the completed individual checklists (Attachments 1 through 11) and forwards Attachment 12 to Shop/Area Supervisor. f) Maintains the most recently completed Attachment 1 through 11 as appropriate at the applicable machine.
<b>Shop/Area Supervisor</b>	6. Maintains log or appropriate tracking of Attachment 12 data for each area/shop as desired by the RLM.

### ABRASIVE WHEEL GRINDER SAFETY CHECKLIST

CHECKLIST ITEM	YES	NO	N/A
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the grinding wheel securely mounted to the machine?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are wheels equipped with safety guards that cover the spindle end, nut, and flange projections?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are these safety guards mounted in such a way as to maintain alignment with the wheel?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Are adjustable work rests of rigid construction provided to support the work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Are work rests kept adjusted close to the wheel with a maximum opening of one-eighth of an inch (1/8") to prevent the work from being jammed between the wheel and the rest?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is the gap between the wheel and tongue less than or equal to one-quarter of an inch (1/4")?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Is the maximum angle of exposure of the grinding wheel edge and sides 90 degrees for bench or pedestal grinders.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Are the wheels running true?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Are the wheels unglazed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Are the face shields clean and in place between the point of operation and eyes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** The machine shall be taken out of service if all items on this checklist cannot be checked with either a "Yes" or "N/A".

**Performed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Property Tag Number:** \_\_\_\_\_

**Comments:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**DRILL PRESS SAFETY CHECKLIST**

<b>CHECKLIST ITEM</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the E-Stop button (if fitted) working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is there a chip guard at the drill press available for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is the chip guard clean?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is there a brush, compressed air, or a vacuum at the drill press available for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is a vise or clamping system available at the drill press for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is the belt/drive unit covered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Is the chuck key removed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** The machine shall be taken out of service if all items on this checklist cannot be checked with either a "Yes" or "N/A".

**Performed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Property Tag Number:** \_\_\_\_\_

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**BAND SAW SAFETY CHECKLIST**

<b>CHECKLIST ITEM</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the E-Stop button (if fitted) working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is there a chip guard at the band saw available for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is the chip guard clean?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is there a brush, compressed air, or a vacuum at the band saw available for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is a push stick or block available at the band saw?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is the belt/drive unit covered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** The machine shall be taken out of service if all items on this checklist cannot be checked with either a "Yes" or "N/A".

**Performed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Property Tag Number:** \_\_\_\_\_

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**MILLING MACHINE SAFETY CHECKLIST**

<b>CHECKLIST ITEM</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the E-Stop button (if fitted) working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is there a chip guard at the milling machine available for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is the chip guard clean?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is there a brush, compressed air, or a vacuum at the milling machine available for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is a vise or clamping system available at the milling machine for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is the belt/drive unit covered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** The machine shall be taken out of service if all items on this checklist cannot be checked with either a “Yes” or “N/A”.

**Performed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Property Tag Number:** \_\_\_\_\_

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**LATHE SAFETY CHECKLIST**

<b>CHECKLIST ITEM</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the E-Stop button (if fitted) working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is there a chip guard at the lathe available for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Is the chip guard clean?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is there a brush, compressed air, or a vacuum at the lathe available for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Is the belt/drive unit covered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** The machine shall be taken out of service if all items on this checklist cannot be checked with either a "Yes" or "N/A".

**Performed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Property Tag Number:** \_\_\_\_\_

**Comments:** \_\_\_\_\_  
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 \_\_\_\_\_

**BELT SANDER SAFETY CHECKLIST**

<b>CHECKLIST ITEM</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is there a brush, compressed air, or a vacuum at the belt sander available for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are work rests kept adjusted close to the belt with a maximum opening of one-eighth of an inch (1/8") to prevent the work from being jammed between the wheel and the rest?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** The machine shall be taken out of service if all items on this checklist cannot be checked with either a "Yes" or "N/A".

**Performed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Property Tag Number:** \_\_\_\_\_

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



**CIRCULAR TABLE SAW SAFETY CHECKLIST**

CHECKLIST ITEM	YES	NO	N/A
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is the E-Stop button (if fitted) working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are all safety guards installed and operable on unit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: The machine shall be taken out of service if all items on this checklist cannot be checked with either a "Yes" or "N/A".

Performed by: \_\_\_\_\_ Date: \_\_\_\_\_

Property Tag Number: \_\_\_\_\_

Comments: \_\_\_\_\_  
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\_\_\_\_\_

**RADIAL ARM SAW SAFETY CHECKLIST**

<b>CHECKLIST ITEM</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is the E-Stop button (if fitted) working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are all safety guards installed and operable on unit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** The machine shall be taken out of service if all items on this checklist cannot be checked with either a “Yes” or “N/A”.

**Performed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Property Tag Number:** \_\_\_\_\_

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**METAL CUTTING SHEAR SAFETY CHECKLIST**

<b>CHECKLIST ITEM</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is the E-Stop button (if fitted) working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are all safety guards installed and operable on unit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** The machine shall be taken out of service if all items on this checklist cannot be checked with either a “Yes” or “N/A”.

**Performed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Property Tag Number:** \_\_\_\_\_

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**HYDRAULIC PRESS BRAKE SAFETY CHECKLIST**

<b>CHECKLIST ITEM</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is the E-Stop button (if fitted) working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are all safety guards installed and operable on unit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Are the jaws and fingers free of dust and dirt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** The machine shall be taken out of service if all items on this checklist cannot be checked with either a “Yes” or “N/A”.

**Performed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Property Tag Number:** \_\_\_\_\_

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
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**SURFACE PLANER SAFETY CHECKLIST**

**Attachment 11**

**SURFACE PLANER SAFETY CHECKLIST**

<b>CHECKLIST ITEM</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. Is the electrical power source properly grounded, with cord and connections in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Is the work area lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Is the Safety Operating Procedure in place and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are work spaces and walkways clear with no slip/trip hazards present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the machine and work area clean and tidy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is the E-Stop button (if fitted) working properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are all safety guards installed and operable on unit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Note:** The machine shall be taken out of service if all items on this checklist cannot be checked with either a “Yes” or “N/A”.

**Performed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Property Tag Number:** \_\_\_\_\_

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**LIST OF AFFECTED MACHINERY**

**Attachment 12**

<b>Shop Name</b>	<b>Type of Equipment</b>	<b>Property Tag No.</b>	<b>Satisfactory</b>	<b>Failed/Equipment Out of Service (initial)</b>
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	
			<input type="checkbox"/>	

**Approved:** \_\_\_\_\_ **RLM**

**Completion Date:** \_\_\_\_\_