**County of Henrico**

**Machine Guarding Program**



**Department of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Division of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

**County of Henrico**

**Machine Safeguarding Program**

**Revision History**

Revision Number and Date:

**Purpose and Scope**

The purpose of this Machine Safeguarding Program is toensure the safety of Henrico County employees by establishing appropriate machine safeguarding procedures for any machine part, function or process that may cause injury. This program helps to ensure compliance with Virginia Occupational Safety & Health Standard 29 CFR 1910.212.

This program outlines responsibilities for all County of Henrico employees, routine inspections for all machines and required employee training. All employees shall follow the minimum procedures outlined in this program. Any deviations from this program must be immediately brought to the attention of the Department Head, or his/her designee.

**Program Responsibilities**

Affected Departments are responsible for providing the equipment and resources necessary to implement this program, as well as effective training. Departments will ensure this program’s provisions followed by all affected employees.

**Department Heads, or designees** are responsible for:

* Ensuring each affected work area/division has a copy of the program
* Ensuring that all current and new machinery is inspected for proper machine safeguarding
* Developing procedures for taking improperly guarded machines out of service
* Ensuring that improperly guarded machines are fixed before being put back into service
* Maintaining a machine-specific list of safeguarding methods
* Scheduling employee training and ensuring new hires are trained on the program
* Providing outside contractors with information on the County of Henrico’s machine safeguarding program
* Reviewing and updating the program and materials as needed
* Maintaining records pertaining to the program

**Supervisors** are responsible for:

* Ensuring assigned machine operators are trained on the Machine Safeguarding Program
* Stopping and correcting any unsafe work practice or condition immediately
* Notifying the Department Head when changes in processes increase the risk of injury or a new hazard has been introduced so the program is revised to address the new condition(s).
* Conducting machine inspections to ensure there are proper safeguards in place
* Ensuring that employees with insufficient skills or understanding of machine safeguarding are removed and retrained before operating any equipment
* Ensuring employees comply with all safe work practices outlined in this program

**Machine Operators** are responsible for:

* Completing all required machine safeguarding training before operating the equipment
* Assisting in inspections
* Verifying guarding devices are in place and functional before using any machine
* Reporting missing or worn guards to supervisors before operating any machine
* Complying with all procedures and safe work practices outlined in this program

**Machine Safeguarding Guidelines**

All County of Henrico machines shall be safeguarded to prevent any part of the employee's body or clothing from being exposed to a hazardous situation. All points of operation, nip points, pinch points, rotating shafts and belts will be guarded. The guards shall also prevent objects from falling into the equipment. Safeguards must not be easily removed or altered, and they will be constructed of substantial material that resists fire and corrosion. When possible, the affected departments will use clear plastic guards that allow for easy inspection.

Guards shall not create an additional hazard such as a shear point, contain a jagged edge or have unfinished surfaces. Guards shall be installed so that routine maintenance can be performed without removing the guard. Whenever possible, the equipment manufacturer’s safeguarding guidelines shall be followed.

Employees shall not use any machine/equipment with a damaged or missing guard until it is repaired or replaced.

**Machine Inspections**

All new equipment and machines shall be inspected by the Department Head, or his/her designee, after setup and before use. All guards that came standard from the manufacturer must be in place and operational before being put in to service. Supervisors and machine operators will visually inspect their machine's safeguards before every shift or new work day.

Each machine will be thoroughly inspected monthly using the safe guarding audit in **Appendix A.** Machines that do not pass inspection will be taken out of service. Any machine taken out of service will be isolated from its energy source(s) using the proper isolation method in the affected Department’s Lockout/Tagout Program and an out of service sign (**Appendix B**) will be promptly attached to the machine.

After all safeguarding issues found during the inspection are corrected to meet the standards outlined in the Machine Safeguarding List (**Appendix C**), the Department Head, or designee, will authorize the area’s supervisor to put the machine back into service.

**Unauthorized Removal of Machine Safeguards**

Department Heads and Supervisors will not tolerate the unauthorized removal of machine safeguards. Any employee found to have removed a machine safeguard without supervisor approval may be subject to disciplinary action.

**Employee Training**

All employees who operate machines as part of their job will be trained on:

* Identifying the hazards associated with the machines they work with
* Specific procedures for each machine they operate
* Types of safeguards and how they provide protection from hazards
* How to use the safeguard
* How and under what circumstances the safeguarding can be removed
* What to do if a safeguard is damaged, missing or is not providing adequate protection
* The types of personal protective equipment (PPE) that should be worn around their assigned machines

Retraining will be conducted for any employee if:

* There is a change in assignment that involves using a different machine
* There is a change in the machine, equipment or processes that presents new hazards
* There is a change in the machine safeguarding procedures
* The supervisor has reason to believe, or determines through inspection or observation, that an employee lacks sufficient knowledge of the safeguarding procedures, or is not following safe work practices

All training records will be maintained on-line or by using the form found in **Appendix D**. All training records shall be recorded and filed by the affected Departments.

**Program Reviews**

The Department Head, or his/her designee, will periodically review the written program to assess its effectiveness. The review will consider any new machines, changes in processes, facility layout changes and the cost and frequency of machine-related injuries.

All machine safeguarding procedures and methods will be reviewed as needed by the Department Head or his/her designee. If any inadequacies are identified, the Department Head, or designee, will take all necessary steps to update the procedure or safeguarding method. The review will include a discussion between the Supervisor and each machine operator to determine if he/she understands his/her responsibilities under the Machine Safeguarding Program. All program reviews will be documented using the form in **Appendix E**, or by using an equally effective method.

**Records Retention**

The County of Henrico will maintain Machine Safeguarding Program training records for three years. All records will be kept by the affected Departments. Inspection records and machine safeguarding lists will be retained for at least three calendar years.

**Appendix A – Machine Safeguarding Audit**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date of Audit: | Date of Last Audit: | Audited by (list all present): | | |
| Machine Information: | | | | |
| Pre-Inspection Machine Notes: | | | | |
| **Requirements For All Safeguards** | | | **Yes** | **No** |
| Do the safeguards prevent workers’ hands, arms and other body parts from making contact with dangerous moving parts? | | |  |  |
| Are the safeguards firmly secured and not easily removed? | | |  |  |
| Do the safeguards ensure that no object will fall into the moving parts? | | |  |  |
| Do the safeguards permit safe, comfortable and relatively easy operation of the machine? | | |  |  |
| Can the machine be lubricated without removing the safeguard? | | |  |  |
| Is there a documented process for shutting down the machine before safeguards are removed? | | |  |  |
| Can the existing safeguards be improved? | | |  |  |
| **Point of Operation Mechanical Hazards** | | | **Yes** | **No** |
| Is there a point of operation safeguard provided for the machine that keeps the operator's hands, fingers and body out of the danger area? | | |  |  |
| Is there evidence that the safeguards have been tampered with or removed? | | |  |  |
| Is there a more practical or effective safeguard? | | |  |  |
| Could changes be made on the machine to eliminate the point of operation hazard? | | |  |  |
| **Power Transmission Apparatus Hazards** | | | **Yes** | **No** |
| Are there any unguarded gears, sprockets, pulleys or flywheels on the apparatus? | | |  |  |
| Are there any exposed belts or chain drives? | | |  |  |
| Are there any exposed setscrews, keyways, collars, etc. ? | | |  |  |
| Are starting and stopping controls within easy reach of the operator? | | |  |  |
| If there is more than one operator, are separate controls provided? | | |  |  |
| **Other Moving Parts** | | | **Yes** | **No** |
| Are safeguards provided for all hazardous moving parts of the machine including auxiliary parts? | | |  |  |
| **Electric Hazards** | | | **Yes** | **No** |
| Are there loose conduit fittings? | | |  |  |
| Is the machine properly grounded? | | |  |  |
| Is the power supply correctly fused and protected? | | |  |  |
| Do workers occasionally receive minor shocks while operating the machine? | | |  |  |

**Appendix B – Out of Service Sign**



**Appendix C – Machine Safeguarding List**

**Woodworking Equipment**

Table Saws - All table saws will be equipped with the following:

* A self-adjusting hood guard that completely encloses the portion of the blade above the table and the portion of the blade above the material being cut
* A spreader to prevent the material from squeezing the blade and from being thrown back at the operator (spreaders are not required during grooving, dadoing or rabbeting operations)
* Non-kickback fingers/dogs to oppose the thrust or tendency of the saw blade to pick up materials or throw the material back toward the operator

Miter Saws - All miter saws will be equipped with the following:

* A hood that completely encloses the upper portion of the blade down to the point that includes the end of the arbor
* A self-adjusting lower blade guard that covers the lower portion of the blade and automatically adjusts itself to the thickness of the material being cut

Band Saws - All band saws will be equipped with the following:

* A guard enclosing all portions of the blade except for the working portion between the bottom of the guide rollers and the table
* An adjustable guard that can be raised and lowered to the thickness of the material being cut
* Fully encased band wheels

Lathes - All lathes will be equipped with a continuous guard that extends over the top of the material being worked to prevent the material from being thrown out of the machine.

**Abrasive Wheels**

Bench and Floor Grinders - All bench and floor grinders will be equipped with the following:

* A guard that covers the spindle end, nut and flange and allows a maximum wheel exposure of 90 degrees beginning at a point no more than 65 degrees above the horizontal surface
* An adjustable work rest that must be kept a maximum of 1/8 in from the wheel

Handheld grinders and cut-off saws - All handheld grinders and cut-off saws will be equipped with a guard that allows a maximum cutting wheel exposure of 150 degrees beginning at a point no less than 15 degrees below the horizontal surface.

**Power Transmission**

Shafts - All shafts will be equipped with a stationary guard that completely encloses the moving shaft and all projecting ends.

Pulleys, Gears, Chains and Belts - All pulleys, gears, chains and belts will be equipped with a stationary guard that completely encloses the moving parts.

**Appendix D – Machine Safeguarding Training Record**

The following individuals received training on The Machine Safeguarding Program.

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| **Print Name** | **Sign Name** |
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| --- | --- |
| Print Instructor’s Name |  |
| Instructor’s Signature |  |
| Instructor’s Title |  |
| Date of Training |  |

**Appendix E – Evaluation Report for Periodic Reviews**

|  |  |
| --- | --- |
| Date of Evaluation: | Evaluated By (list all present): |
| Written Program Reviewed: Yes/No | |
| Comments on Written Program: | |
| The following procedures have been reviewed: | |
| The following procedures were modified: | |
| The following procedures were added: | |
| A review of any occupational injuries and illnesses that occurred during the current year: Yes No  A report for the associated accident and illness was made to the appropriate person: Yes No | |
| The following additional expense(s) resulted from improper safeguarding: | |
| If injuries are listed above, indicate the procedure number that was not followed for the applicable equipment, process or machinery: | |