



Subject: **MACHINE GUARDING**

Policy No. 151

APPLICATION

All New York University academic, commercial and residential facilities.

PURPOSE

To minimize the incidence of employee injuries from machines and equipment as per OSHA 1910.212.

POLICY AND GENERAL INFORMATION

1.0 Responsibilities

- 1.1 Environmental Services will be responsible for conducting annual inspections of Machine Shops in the areas of safety and training. Environmental Services will also ensure that the Supervisors are trained annually as well as all machine operators. (see section 5.0 of this policy)
- 1.2 The Supervisor will be responsible for implementing the Machine Guarding Safety Policy in their area. This will include assuring that their Machine Operators follow all policies and procedures related to the safe operation of all shop machines, and will take corrective action in the event that an operator violates the established safe operating procedures.
- 1.3 The Supervisor will ensure that only those operators who have been trained to operate the shop machines will be allowed to do so. Employees will receive training prior to operating any shop machines. The Supervisor will maintain all required training documentation within their department.
- 1.4 Following the initial training, the all operators will be required to take an Annual Training Refresher (see section 5.2). The Operator will also conduct a Self-Audit Safety Checklist (see section 7.0) detailing the items to be reviewed prior to operation.

2.0 Machinery with Moving Parts

- 2.1 Whenever there is a possibility that operators may come in contact with moving mechanical parts, they shall be safely enclosed in affixed machine guards or placed behind barricades as to prevent operators from gaining access to the area of moving parts.
- 2.2 Machines requiring a guard shall not be used if the guard is missing or defective. The missing or defective guard should be reported to the supervisor immediately and replaced before the machine is operated. Only guards specified by the machine's manufacturer shall be used.

ISSUE DATE	REPLACES	ORIGINATOR	APPROVAL
11/05	09/03	ENVIRONMENTAL SERVICES	SR. VP OPERATIONS AND ADMINISTRATION

2.3 Machine guards should be removed only for the purposes of servicing the machine. No guard, barrier, or enclosure shall be adjusted or removed from the machinery by an operator for any reason unless permission has been given by the supervisor to do so.

2.4 Procedures for Servicing Machinery with Moving Parts

2.4.1 Prior to guards or other guarding devices being removed for servicing, a zero mechanical state (ZMS) for the machine shall be achieved. All power sources to the machine (electrical, pressurized fluids and pressurized gases) shall be isolated from the machine. All electrical sources shall be turned off at the main breaker. The breaker shall be locked out and tagged with a warning sign by the person performing the servicing. Only one key shall be available and should be kept by the servicing person. As a check to test if ZMS has been achieved, the servicing person should press the "start" button(s). No moving part should be activated.

2.4.2 Following the servicing, the guarding shall be replaced. Once it is securely affixed, the lock and tag on the main breaker may be removed.

3.0 Proper Personal Protection Equipment (PPE)

Proper PPE including eye protection, hand protection and foot protection must be worn in accordance with NYU Safety Policy No. 112 and OSHA 1910.132 dealing with the use and selection of PPE.

4.0 Inadequate Clothing

Operators should not wear loose clothing, watches, rings or other jewelry while operating or being in close proximity to mechanical equipment with moving parts. For persons with long hair, it should be bound and kept as to eliminate the potential of getting it caught in moving parts.

5.0 Training

5.1 Initial Training

Supervisors will train machine operators in the operation of machinery used in their respective job assignment(s). Manuals explaining a machine's operation and maintenance should be provided by the manufacturer and shall be accessible to all operators and supervisors.

5.2 Annual Refresher Training

Annual Refresher Training is required. The "Shop Safety Program-Annual Refresher Training" can be found on-line at www.nyu.edu/environmental.services/training.shtml. The supervisor will keep a copy of those who are trained as well as send a copy of the completed training to Environmental Services. If on-line training is not a viable option, contact Environmental Services for live training.

Subject: **MACHINE GUARDING**

Policy No. 151

6.0 Records

An inventory spreadsheet list is kept at Environmental Services of all machines per department requiring safeguarding. Please notify Environmental Services of any changes in department inventory of machines. Environmental Services will perform an annual safety inspection of the shop practices of all machines and this will also be filed at Environmental Services. *See section 5.3 of this policy for additional records.*

7.0 Program Evaluation

An annual self-audit evaluation of the work area shall be performed by operators and supervisors and a completed copy sent to Environmental Services. Please notify Environmental Services of any discrepancies that may result from the self-audit. Self-Audit Evaluation located on page 4 and the key on page 5 of this policy. If there are changes in operators or equipment, the audit should be conducted more frequently and a completed self-audit sent to Environmental Services.

8.0 Machines and Machine Guarding Self-Audit Checklist

Operator's Name (print): _____ Supervisor _____

Building: _____ Room: _____ Date: _____

Check only if machine complies. If machine does not, mark NO next to box. See page5 for Key.

- 1. Guards prevent worker's hands, arms, or other body parts from making contact with moving parts.
- 2. Guards firmly secured and not easily removable.
- 3. Guards permit safe, comfortable, and relatively easy operation of the machine.

Subject: **MACHINE GUARDING**

Policy No. 151

4. Self explanatory
5. If possible, machine design should allow for routine lubrication and adjustment without removal of safeguards. When safeguards must be removed, safe procedures must be developed to insure that the machine has been shut down. A lockout/tagout program may be necessary.
6. Point-of-operation is the point where work is performed on the material, such as cutting, shaping, boring, or forming of stock. Point-of-operation guarding is complicated by the number and complexity of machines and by the different uses of individual machines.
7. Rotating parts (even smooth, slowly rotating shafts) can grip clothing or, through mere skin contact, force a hand or arm into a dangerous position. Guard should be designed to allow no contact with rotating parts. Operator should avoid wearing loose fitting clothing.
8. Belts and chain drives create in-running nip point hazards where the belt or chain contacts the pulley or sprocket. Guards should be designed to allow no contact.
9. The normal hazards associated with rotating parts increase with projections such as set screws, key ways, etc., and must be guarded to prevent contact.
10. Reciprocating and transverse motions of machine parts are examples of other hazards which require guarding.
11. Some machines are capable of producing noise levels, which require hearing protection. Contact Environmental Services for information or assistance in measuring machine noise levels.
12. Cutting fluids, coolants, and any other substance used in machine operations should be evaluated before use. The substance's MSDS, container label, or other product information can be helpful in determining if additional precautions will be necessary. Dispose of items as hazardous waste.
13. Replace frayed, exposed, or deteriorated wiring.
14. A hazard evaluation of the tasks that machine operators perform will help in determining if personal protective equipment is necessary. Please contact Environmental Services if you need assistance.
15. Loose-fitting clothing and jewelry should not be worn by machine operators. Long hair can also become entangled in rotating parts.
16. Training should be provided by the individual department supervisors. Additional training is available on-line at: www.nyu.edu/environmental.services/training.shtml. Environmental Services will provide annual training for supervisors as well as inspect machine inventory. A Machine Shop Safety video is available for rental from Environmental Services.
17. Training is required for all workers authorized to apply lockout/tagout devices. Training is also required for workers who are affected by the lockout/tagout activities of authorized workers. General Training is provided by contacting Environmental Services.
18. Workers/Operators must receive adequate training on Personal Protective Equipment selection and use.