



Creating Solutions for Healthy Indoor Environments

Management Plan For Industrial Technology Safety

New Prague Area Schools
ISD #721

New Prague Area Schools

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1.0 Introduction

New Prague Area Schools are committed to providing a safe and healthy workplace and learning environment for its employees and students. The district developed this Management Plan for Industrial Technology Safety to enhance the protection of students and staff from the hazards of dangerous equipment and machinery and to comply with OSHA's 29 CFR 1910 Subpart O *Machinery and Machine Guarding*, ANSI 01.1-1975 *Safety Requirements for Woodworking Machinery*, ANSI/ASME B11.19 *Performance criteria for the design, construction, care, and operation of guarding when referenced by other B11 machine-tool safeguards*, and NFPA 79 *Electrical Standards for Industrial Machinery*.

2.0 Responsibility for Compliance

The Industrial Technology Equipment Coordinator for New Prague Area Schools is:

Don Plaisance
New Prague Area High School
952-758-1232

The responsibilities of the Industrial Technology Equipment Coordinator are as follows:

- Inventory fixed equipment in the Industrial Technology areas
- Provide training to employees regarding machine safety and machine guarding including the hazards of machines and the importance of proper machine guards
- Assist in the proper selection and maintenance of machine guards and personal protective equipment
- Verify new equipment meets the requirements of this program and the machine guarding requirements of OSHA, MDE, ANSI, NFPA, and/or best practice standards

The industrial technology program is responsible for providing safety equipment and supplies as specified in this plan. In addition, employees using or teaching with the equipment are responsible for the following:

- Train students on specific machine operating rules in their areas
- Monitor and inspect equipment to verify machine guards remain in place and function properly
- Do not operate equipment unless guards are in place and functional
- Perform inspections of machinery on a regular basis
- Notify the Head Building Custodian and Industrial Technology Equipment Coordinator when deficiencies are noted

3.0 General Safety and Housekeeping

The following precautions pertain to the minimum general safety and housekeeping procedures implemented in industrial technology classrooms:

- Students are supervised by an instructor when in a shop area or using chemicals.
- Floors and aisles are in good repair and free from obstructions such as protruding nails, splinters, holes, or other tripping hazards. Floors in working areas are clean to prevent slipping and provide an effective means to prevent employees or students from slipping.
- Aisle ways and passageways are kept open and clean to maintain safe egress.
- No food is allowed in an industrial technology area. Eating, drinking, chewing gum, or applying cosmetics is not allowed in the shop area.
- Appropriate personal protective equipment and apparel are used where necessary (e.g., eye protection).
- Dust collection systems are used in areas where woodworking machinery is being used.
- At minimum, an 18-inch clearance is maintained between storage materials and the height of fire sprinkler heads or a 24-inch clearance between the materials and the ceiling if no sprinkler system is installed.
- Storage of materials does not create a hazard. Overhead storage is stable and secure. Large objects with heavy weights are not stored overhead. Weight limits of shelving units and mezzanine areas are posted.

- At minimum, a space of 36 inches is maintained for access to all electrical boxes and utility controls.
- Tools, equipment, and machinery are not altered for use other than that for which they are intended by the manufacturer.
- Instructors, employees, and students know the location of and maintain the accessibility to safety equipment, including fire extinguishers and eyewash stations where appropriate.
- Liquid spills are cleaned immediately with proper cleaning materials. Students and staff read labels and MSDSs prior to clean up.
- Vacuums are used to keep work areas clean and free of debris. Compressed air is not used to clean dirt and dust from equipment, clothing, or skin.
- Tools, equipment, and machinery that are properly maintained and adjusted are used. Tools do not have paint or tape on them to hide cracks or defects. Defective tools are not used; they are destroyed and disposed of immediately to prevent further use.

4.0 Clothing and Safe Dress Requirements

The following precautions pertain to acceptable clothing and safe dress procedures implemented in industrial technology classrooms.

- Instructors are responsible for informing students of the requirements to wear apparel that is suitable for the type of shop activities that will be performed.
- An individual working with machinery or in other hazardous operations wears clothing that is well fitted with no loose or flowing articles. Shirts are tucked in and short sleeves are considered the best for preventing these articles from being caught in rotating or moving parts of machinery.
- Instructors or individuals who have long hair and who work around machinery with moving or rotating parts wear adequate hair-covering to prevent hair from possible entanglement in the machine.
- Jewelry such as rings, pendants, necklaces, dangling earrings, and watches are not worn when working with machinery that has moveable or rotating parts.
- Shoes are well fitted with good soles and heels and of a style that completely covers the foot. Open-toed shoes such as sandals are not allowed in any of the shop areas during shop activities.

5.0 Personal Protective Equipment

In cases where engineering controls are not available or cannot control or eliminate the hazard of the machine, operators are required to wear protective clothing or personal protective equipment.

Course instructors and the Industrial Technology Equipment Coordinator are responsible for implementation of the PPE program related to the shops. This includes the following:

- Conduct a hazard assessment to determine what types of PPE to use according to potential hazards
- Purchase necessary equipment and signage
- Train individuals who work with any type of hazardous machinery on proper care, cleaning, storage, and maintenance of PPE
- Replace or repair all defective PPE immediately

Reference the Personal Protective Equipment Management Plan for more information on personal protective equipment needs for the industrial technology program.

6.0 Machine Safety

Machinery is the most hazardous piece of an industrial technology program. It is required that students are supervised when using equipment at all times. An equipment inventory is located in the Industrial Technology Department offices. Only trained and authorized employees are allowed to remove machine guards. Machine guards are not removed unless the electrical energy source to the equipment has been locked and/or tagged out. Equipment is not operated unless guards are in place and functional.

Guarding

One or more methods of guarding is required by OSHA to protect the equipment operator and those working around the equipment. Machinery or equipment meets or exceeds the following guarding requirements:

- Guards are affixed to the machine where possible and secured. Guards must prevent hands, arms, or any part of the operator's body from making contact with hazardous moving parts.
- Guards do not create an accident hazard themselves. Guards do not create interference that would hamper the operators from performing their tasks comfortably.
- The point of operation that may expose an operator to injury or hazard is guarded.
- Guards are affixed to machinery in a manner that is not easy to remove or tamper with.
- Guards and safety devices are made of durable material that can withstand the conditions of normal use.
- Fan blades that are less than seven feet above the floor or working level are equipped with a guard that has openings no larger than one-half inch.
- Guards prevent objects from falling into moving parts resulting in the objects becoming projectiles.

Color-Coding

Reasonable attempts are made by the district to meet or exceed the following color-coding "best practices:"

- Machines are color-coded with safety orange where there is an intermediate level of hazard. Examples include hazardous parts of machines that may cut, crush, or otherwise cause injury.
- Guards and protective covers are color-coded with safety yellow. This designates that dangerous parts of machinery or energized electrical components are contained inside the guard; therefore, caution must be exercised.
- Safety red is the basic color for the indication of danger and on devices used for emergency stopping of machinery. The background immediately around pushbuttons and disconnect switch actuators used as emergency stop devices are colored yellow. The red/yellow color combination is reserved exclusively for emergency stop applications.

7.0 Electrical Safety Requirements

Safe electrical work practices are followed to prevent electrical shock. The minimum electrical safety procedures are as follows:

- A mechanical or electrical power control is provided on each machine to make it possible for the operator to cut off the power from each machine without leaving his/her position at the point of operation.
- The actuator of a pushbutton-operated emergency stop device is of the palm or mushroom-head type (considered "best practices" by the Minnesota Department of Education)
- Stop and emergency stop pushbuttons are continuously operable and readily accessible.
- On applications where injury to the operator might result if motors were to restart after power failures, provisions are made to prevent machines from automatically restarting upon restoration of power.
- Damaged electrical equipment is taken out of service until repaired or replaced.
- Damaged extension cords are thrown away.
- Electrical equipment and cords have a 3-prong grounding plug unless the cord is double insulated. Where the grounding plug is missing, cords and equipment are not used until repaired or replaced.

8.0 Compressed Air Safety

The following precautions are to be taken when using compressed air in the industrial technology safety program:

- The instructor inspects the compressed gas system prior to use.
- Compressed air equipment is labeled to identify its maximum allowable working pressure.
- Equipment is maintained properly and stored in a manner that does not cause a trip hazard.

- Compressed air nozzles are equipped with a separate regulator to reduce pressure to less than 30 psi when used for blowing.
- Eye and face protection are used by students and staff when using air compressor equipment.
- Compressed air is not used to clean clothing, skin, or machinery.
- For more information, reference the *Management Plan for Compressed Gases*

9.0 Chemical Safety

Chemical storage and disposal requirements are detailed in the district's management plans for *Employee Right-to-Know* and *Hazardous Waste*. A chemical inventory and material safety data sheets (MSDSs) are located in each department. Chemicals are labeled appropriately. Proper personal protective equipment is used while handling chemicals.

10.0 Safety Equipment

Safety equipment is maintained in operating condition at all times.

- Eyewash stations and emergency showers (if available) are flushed for 3 minutes on a weekly basis by building custodians (showers may be flushed briefly). Flushing records are required to be maintained by the responsible person.
- Fire extinguishers are inspected annually by a fire safety contractor and monthly by custodial staff.
- Floor dry and spill clean-up kits are available where necessary.
- A minimum of 36 inches of open space is maintained around electrical panels, fire extinguishers, eyewash stations, and emergency showers.

11.0 Emergency Medical Procedures

In the event an employee or student is injured due to a mechanical hazard, that employee or student is to immediately seek medical attention. Emergency medical attention is obtained by contacting the building nurse or calling 911 depending on the severity of the injury.

Injuries are reported regardless of severity. Injuries to instructors or staff are documented through their supervisor on the First Report of Injury, and cases that are considered recordable cases are documented on the OSHA 300 log. Injuries to students are documented through the nurse's office and kept on file at a minimum for the duration of the school year.

In the event of a fire or other crisis, reference the district's *Emergency Action Plan*.

12.0 Training

Employees and students are trained on machinery or equipment they are using. Only trained personnel or those undergoing supervised on-the-job training are allowed to operate shop machinery or equipment. The operator training programs are tailored specifically to an employee's or student's work area. At a minimum, the training program includes the following:

- The nature of the hazard for each piece of machinery or equipment
- Proper operation and shut down for each piece of machinery or equipment
- Safety procedures for machinery that requires special set-ups for each tool
- How work will be performed in a safe manner

In addition, training requires the employees to demonstrate their proficiency and knowledge on the skills required to operate each piece of machinery safely. The supervisor/instructor determines that each employee or student knows and understands the features of the equipment, all applicable safety rules, and is skilled in the operation of the equipment. All training is documented and retained for a minimum of 3 years at the Operations Office.