SECONDARY TECHNOLOGY CENTER
SAFETY MANAGEMENT

WRITTEN PLAN

Intermediate School District 917

July 2025

INTRODUCTION

The health and safety standards included in the following sections are provided for guidance to Intermediate School District 917 Secondary Technology Center instructors. Compliance with these standards will substantially aid in providing a safe and healthy work and teaching environment. Procedures outlined should be considered the minimum standards that apply for classrooms. The standards are derived from existing state or federal occupational health and safety regulations and other organizations such as: the National Fire Protection Association and the American National Standards Institute. If there are discrepancies between this plan and the standards, the standards are to take precedence.

The Intermediate School District 917 technology programs include: Construction; Total Auto Care; Heavy Duty Truck Technology; Graphic Communications; Computer Repair, Networking, and Video Game Design. It is imperative that instructors become familiar with and implement the sections in this plan that pertain to the operation(s) under their control.

Each technology program is responsible for providing safety equipment and supplies as specified in this plan. If there is equipment that does not meet the standard, it is not to be used. If there is equipment that is not used and is not likely to be used in the future, it should be decommissioned. Equipment shall be maintained in good repair. If equipment is not operable or does not meet the standards, it should be red tagged as not operable until a time when it is repaired or upgraded. Instructors are not to perform repairs or upgrades to equipment.

Section 1: The Technology Shop Safety Management Plan

The Secondary Technology Center Safety Management Plan covers: general safety and housekeeping, clothing and safe dress, personal protective equipment, machine safety, hand and power tool safety, electrical safety, compressed air safety, compressed gas cylinders, employee right to know, chemical storage requirements, safety equipment, emergency procedures, employee training and recordkeeping. This plan will be reviewed annually, evaluated for effectiveness and updated as necessary. This plan will be maintained in the District Office and on-site by each shop instructor. It shall be made available to employees, employee representatives, and safety inspectors upon request.

Each Technology Shop curriculum shall develop and implement their safety plan specific to the activities being performed. Safety guidelines for students are to be developed by instructors that are specific to the task to be performed. Student guidelines should include items identified in this plan and student behavior do's and don'ts. **Health and safety must be made an integral part of all Technology Shop curriculums and the instructor must document student competency on safety procedures by maintaining a file for each student containing safety worksheets and actual safety test passed at the 100% level.**

On a regular schedule, but not less than monthly, instructors are responsible for inspecting the shop areas under their control.

Section 2: General Safety/Housekeeping

The following precautions pertain to the minimum general safety/housekeeping procedures to be implemented in the Technology Shop classrooms:

1. Report all injuries. Injuries to instructors must be documented through the **Business and Nurses's** Office on the Injury Report Form. The Student Injury Log is to be used to document injuries to students.
2. Students are to be supervised by a licensed Technology Shop instructor when using shop equipment or chemicals.
3. No food is allowed in a Technology Shop area. Do not eat, drink, chew gum, or apply cosmetics in a shop area.
4. Minimize exposures by using appropriate personal protective apparel and equipment. (i.e. eye protection, machine guards, etc.)
5. Only tools, equipment, and machinery that are properly maintained and adjusted may be used.
6. Tools, equipment, and machinery may not be altered for use other than that for which it was designed and specified by the manufacturer.
7. Know the locations of and maintain accessibility of all safety equipment including: fire extinguishers, eyewashes, drench showers, etc.
8. Floor areas and aisles must be kept free of debris or any item that may constitute a tripping or slipping hazard.
9. Dust collections systems must be used when performing woodworking activities.
10. Cleanliness around woodworking activities is to be maintained. Particular attention should be made in regards to preventing fire hazards from wood dust inside electrical switch enclosures, bearings and motors.
11. Use shop vacuum equipment to keep work areas clean. Compressed air must not be used to clean dirt and dust from equipment, clothing or skin.
12. Clean up liquid spills immediately.
13. Maintain storage areas in a safe and orderly manner.
14. Store flammables in an approved flammable cabinet if in excess of 10 gallons.
15. Maintain aisles and egresses open and clear.
16. A minimum of 18 inches of clearance must be maintained between storage materials and fire sprinkler heads.
17. Storage of materials must not create a hazard. Overhead storage must be stable and secure. Large objects should not be stored overhead. Attention to the weight limit of a shelving or rack unit should be monitored.

18. A minimum of 36 inches of open area must be maintained for access to all electrical boxes and utility controls.

Section 3: Clothing and Safe Dress

The following precautions pertain to the minimum clothing and safe dress procedures to be implemented in Technology Shop classrooms:

1. The type of clothing is to be appropriate for the planned shop activities.
2. Instructors are responsible for ensuring that students are informed as to the requirements for wearing apparel that is suitable for the type of shop activities to be performed and the hazards involved.
3. For those working with machinery or in other hazardous operations, clothing should be well fitted with no loose or flowing articles. Shirts must be tucked in and short sleeve types are the best.
4. Shoes should be well fitted with good soles and heels and of a style that completely covers the foot. Open-toe shoes "sandals" or lightweight shoes must not be worn during shop activities.
5. Instructors and students with long hair who work around moving machinery must wear adequate hair covering to preclude the possibility of entanglement.
6. Jewelry such as rings, pendants, necklaces, earrings, and watches shall not be worn when working around moving machinery, electricity or electronics equipment.

Section 4: Personal Protective Equipment

This section addresses eye, face, hand and hearing protection. Activities are not to be performed which would require the use of respirator protection, however voluntary use of respirators is allowed. Personal protective equipment (PPE) is to be used by instructors and students whenever doing so will reduce the likelihood of injury. PPE is not a substitute for engineering controls, administrative controls, or good work practices, but must be used in conjunction with these controls.

Responsibility

Instructors have the primary responsibility for implementation of the PPE program in their shop area. This includes: conducting a hazard assessment in their area, determining what type of PPE is required, purchasing the necessary equipment and signage, ensuring students are trained on the proper use, care and cleaning of PPE, ensuring students are wearing PPE and replacing defective or damaged equipment immediately. Based on the hazard assessment, locations or activities that require PPE are to be clearly demarcated identifying the type of PPE required. Visitors or others passing through the area should be able to easily identify the hazards and PPE required.

Eye and Face Protection

Instructors and students must use appropriate eye and face protection when working in eye protection areas or exposed to hazards from flying particles or chemicals. Eye protection areas include but are not limited to, technology shops in which activities are taking place and materials are being used involving: hot molten materials, milling, sawing, turning, shaping, cutting,

grinding or stamping of any solid materials, heat treatment, tempering, or kiln firing of any metal or other materials, gas or electric arc welding, repair or servicing of any vehicle or mechanical equipment. Eyewear must comply with ANSI Z87.1 as indicted by labels on the PPE. When there is a hazard from flying objects, side protectors must be used.

Hand Protection

Instructors and students must use appropriate hand protection when exposed to hazards from skin absorption of harmful substances, severe cuts or lacerations, abrasions, punctures, chemical burns or temperature extremes. An evaluation of the hazard must be made and the appropriate glove type selected. Glove selection will be based on performance characteristics of the gloves, conditions, duration of use, and hazard present. One type of gloves will not work in all situations.

Hearing Protection

Instructors and students exposed to noise levels at or above the OSHA permissible exposure limit of 85 dBA as measured on an eight-hour time weighted average (TWA) must wear hearing protection. It is recommended that hearing protection be used whenever operating equipment which generates decibel level above 80 dBA. The type of hearing protection device used must, at a minimum, attenuate the noise level to an 8-hour TWA of 85 dBA or less. Instructors should also limit their daily noise exposure by reducing the time period devoted to excessively noisy activities. Personnel and equipment noise level monitoring can be performed by Health and Safety upon request.

Refer to the District Respiratory Protection, Personal Protective Equipment and Hearing Conservation Written Plans for more information on these topics.

Section 5: Machine Safety

Machinery is the most immediate and apparent safety hazard in the shop area. **It is imperative that instructors supervise students at all times when using any shop machines.** Prior to student usage, the instructor must approve the intended operation by the student making sure that guards are in place and that student has passed the safety test for the equipment he/she will be operating. Instructors must ensure that the equipment is functioning properly and all safety equipment is in place and being used. Equipment lighting is to be maintained operational and must be protected from breakage. All safety guards must be maintained in proper position while the machine is in operation. The instructor is responsible for performing regular scheduled inspections and manufacturer specified preventative maintenance of machinery. The instructor is not to perform maintenance that will require the implementation of lockout/tagout procedures. If machine equipment is determined not to be functioning properly or it is missing safety or guarding equipment, it is not to be used. The instructor must label the equipment with a red tag as not operational until such a time when repairs or upgrades can be made. Students shall have completed a safety worksheet for each piece of equipment and passed a safety test at the 100% level in order to be deemed fit to operate that machine. The instructor will keep a file for each student containing the worksheet and student safety test. The instructor will record on a visible, posted sheet the student's name and the machines he is qualified to operate. Students not

demonstrating competency with machine operation and safety procedures must not be allowed to operate machinery.

Guarding

Machine guarding procedures are as required by OSHA 29 CFR 1910.212. One or more methods of machine guarding shall be provided to protect the operator and other people in the machine area from hazards such as those created by point of operation, in-going nip points, rotating parts, flying chips and sparks. Examples of guarding methods are barrier guards, two-hand tripping devices, electronic safety devices, etc. Safeguards must meet the following minimum requirements:

1. Prevent Contact: The safeguard must prevent hands, arms, and any other body part of the user's body from making contact with dangerous moving parts. All belts, pulleys, gears, shafts and moving parts must be guarded. Chip shield guards and filler plates need to be maintained at a maximum clearance of 1/4 inch on the top plate and 1/8 inch on bottom.
2. Secure: Users should not be able to easily remove or tamper with the safeguard. Guards and safety devices should be made of durable material that will withstand the conditions of normal use. Safeguards must be firmly attached to the machine.
3. Protect from Falling Objects: The safeguard should ensure that no objects could fall into moving parts.
4. Create No New Hazards: A safeguard defeats its own purpose if it creates a hazard of its own such as a shear point, a jagged edge, or an unfinished surface which can cause a laceration. The edges of guards should be rolled or bolted in such a way that they eliminate sharp edges.
5. Create No Interference: Any safeguard, which impedes a user from performing the job quickly and comfortably, may soon be overridden or disregarded. The guard should be evaluated by Health and Safety personnel for possible improvement but **not** removed.
6. Allow Safe Lubrication: If possible, machines should be able to be lubricated without removing the safeguards.

Section 6: Hand and Power Tool Safety

The instructor must monitor activities involving the use of hand and power tools. Tools must be maintained in a safe and operable condition. Any hand or power tool found not in proper working order must be removed from service. Tools must be inspected at regular intervals and preventative maintenance performed in accordance with the manufacturer's specifications. All tools must be used with the correct PPE, shield, guard or attachment recommended by the manufacturer. Tools are only to be used for the designed or intended usage. Following usage, hand and power tools are to be properly stored and secured. Tools should never be left unattended where they may be available to unauthorized persons.

Guarding of Portable Power Tools

Portable power tool guarding procedures must meet the following minimum procedures:

1. All portable, power-driven circular saws having a blade diameter greater than two inches must be equipped with guards above and below the base plate or shoe. The upper guard must cover the saw to the depth of the teeth except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard must cover the saw to the depth of the teeth except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard must automatically and instantly return to covering position.
2. All hand-held power circular saws having a blade diameter greater than two inches must be equipped with a constant pressure switch or control that will shut off the power when the pressure is released.
3. All hand-held power drills, fastener drivers, grinders or disc with wheels greater than two inches, belt sanders, reciprocating saws, saber, scroll and jig saws with blade shanks greater than a one-fourth inch, and other similarly operating powered tools will be equipped with a constant pressure switch or control, and may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger that turned it on.
4. The operating control on hand-held power tools must be located as to minimize the possibility of its accidental operation.
5. All portable electric power tools must be grounded.

Section 7: Electrical Safety

Safe work practices must be employed to prevent electric shock or other injuries resulting from electrical contact. Activities performed near or on equipment or circuits that are or may be energized must incorporate safety-related work practices consistent with the nature and extent of the associated electrical hazard. The minimum electrical safety procedures are as follows:

1. All electrical equipment and cords must be inspected monthly by the instructor to insure proper use and safe condition.
2. Damaged electrical equipment must be reported for repairs.
3. The power source to damaged electrical equipment must be disconnected (red tagged) until repairs can be made.
4. Damaged extension cords should be discarded.
5. All electrical equipment and cords must be properly grounded with three-prong type plugs. Power tools not equipped with three-prong type plugs must be double insulated or connected to a ground-faulted outlet or adapter.
6. All occasional use electrical equipment must be disconnected when not in use.
7. Extension cords must not be used on a **permanent basis** to supplement existing outlets to provide electricity for appliances and equipment in regular use.
8. The use of octopus plugs, strip adapters and three-prong adapters are prohibited. The use of ground faulted power strips is acceptable.
9. Circuit breaker panels and wiring are not to be modified by instructors or students.
10. All circuit breakers must be identified by label according to service area. Breakers are to be labeled to facilitate power shut-off in the case of an emergency.
11. A minimum of a 36-inch clearance around electrical service panels and emergency shut-off equipment must be maintained.

12. Electrical service panels are to be secured (locked) at all times to prevent student access. If the service panel is the only location for equipment emergency shut-off, it is to be maintained unlocked and accessible.

Electrical Controls and Equipment

1. Mechanical or electrical power controls must be provided for each machine to make it possible for the operator to cut off the power. Clearly marked power controls must be located within easy reach of the operator. Emergency stops should be identified in red.
2. Students should be given instruction on the purpose of the over-current devices and disconnects should be properly labeled.
3. Electrically driven equipment must be controlled with a magnetic or similar device to prevent automatic restarting of the machine after a power failure.
4. Power controls and operating controls should be located within easy reach of the operator without requiring them to reach over operating parts.
5. Instructors are not to perform repairs on electrical equipment. Adjustments that are considered to be routine, repetitive, and integral to the use of the equipment can be performed by the instructor.
6. Prior to making adjustments to electrical machinery, procedures must be followed to render controls and devices inoperative (lockout/tagout).

Section 8: Compressed Air Safety

The following precautions pertain to the use of compressed air in shop areas:

1. Students are to be supervised by the instructor at all times during compressed air activities.
2. The instructor, prior to each use, must inspect all components of the compressed air system.
3. Compressed air equipment is not to be modified by instructors or students.
4. Compressed air equipment must be labeled to identify its use and maximum allowable working pressures.
5. Air supply shutoff valves must be located as near as possible to the point of operation.
6. Air hoses must be kept free of grease and oil to reduce the possibility of deterioration.
7. Hoses must not be strung across floors or aisles where they are likely to cause occupants to trip and fall.
8. Hose storage must be in a location that provides efficient access and protects the hose and nozzle from damage.
9. Hose ends must be secured to prevent whipping if an accidental cut or break occurs.
10. Before a pneumatic tool is disconnected, the air supply must be turned off at the control valve and the tool bled.
11. Eye and face protection must be worn at all times by instructors and students during compressed air activities.
12. Compressed air nozzles must be equipped with a separate regulator to reduce pressure to less than 30 psi when used for blowing.
13. Compressed air must not be used to clean dirt and dust from clothing or off a person's skin.

14. Compressed air is not to be used for cleaning machinery or blowing dust around the shop area. Shop vacuums and brooms are to be used for cleaning.

Section 9: Compressed Gas Cylinders

Procedures for the use and storage of compressed gas cylinders must meet the following minimum procedures:

1. Instructors must inspect compressed gas cylinders on a weekly basis when in storage and prior to each use.
2. Compressed gases must be handled as a high-energy source and as a potential explosive.
3. All compressed gas cylinders must be clearly labeled with the chemical or trade name of the gas.
4. Always protect cylinder valve stems with valve protectors when not in use or connected for use.
5. Avoid exposing cylinders to heat sources and direct sunlight.
6. Never lubricate, modify, force or tamper with cylinder valves.
7. Gas cylinders must be secured in place and reactive gas cylinders must be separated from oxidizing cylinders by a firewall or a minimum of a 20-foot distance. Mobile cylinders must be securely chained to a wall or cart.
8. Proper personal protective equipment must be used when necessary. (i.e., welding/cutting)

Section 10: Right-to-Know

Right to Know is designed to protect employees, occupants and students from the effects of any hazardous chemical used or stored in industrial arts areas. The purpose of the program is to ensure that all hazardous chemicals in the workplace are identified and to increase employee education and awareness of hazardous chemicals. The District-wide written Employee Right to Know Written Plan is maintained in the District Office.

Procedures to be implemented by instructors are as follows:

1. **Chemical Inventory:** A complete and current inventory of all hazardous chemicals must be maintained for each technology program. The inventory should be maintained as part of this plan using the Chemical Inventory Form**.** All items in inventory must show the chemical name, manufacturer information, storage location, quantity, product usage and hazard analysis. Examples of hazardous chemicals include, but are not limited to, cleaning chemicals, gasoline and other petroleum products, compressed gases, paints and solvents, inks, and processing chemicals. Products exempted from this requirement include consumer products packaged for distribution to the general public, if used by employees in the workplace in the same form, concentration, frequency and manner, as would the general public.

2. **Safety Data Sheets:** Every item in the chemical inventory must have a corresponding Safety Data Sheet (SDS). It is the responsibility of each school technology shop

department to maintain SDS's as part of this plan. SDS's must be organized and made easily available to employees and students. ISD 917 uses MSDSonline for their chemical inventory. Every teacher computer has it on their desktop for easy access.

SDS's are available from the product suppliers and should provide the following minimum information: chemical name, hazardous components, physical characteristics (density, flashpoint, etc.) physical hazards (fire, explosion, reactivity) health hazards and symptoms, primary routes of entry, permissible exposure limits or threshold limit value, any applicable precautions (gloves, goggles, fume hood, etc.) first aid and emergency procedures, date prepared and name and address of the manufacturer. Any item in inventory that does not have a SDS is to be disposed of. Hazardous products are to be disposed of in accordance with the Regulated Waste Management Plan.

3. **Chemical Labeling:** All chemical containers must be labeled to clearly identify contents. At a minimum, chemical container labeling is to list: chemical name, concentration and how the chemical can hurt you. It is best if the label on the container matches the name on the corresponding SDS.

Section 11: Chemical Storage Requirements

All chemicals represent potential hazards and storage systems must recognize these hazards and be designed to minimize them. The quantity of stored chemicals should be minimized to include only those needed for scheduled shop activities. In the event that a shop area has excess or old chemical products, the District Office should be contacted to provide for proper disposal. Storage and disposal requirements for specific chemicals are identified in the Regulated Waste Management Plan.

Chemical storage requirements to be implemented by instructors are as follows:

1. Chemicals should be stored in secured, storerooms or cabinets. Unsecured areas are not to be used for chemical storage.
2. Instructors must inspect chemical storage rooms and cabinets weekly.
3. No unlabeled products should be stored anywhere.
4. Store only the minimum amount of chemicals needed.
5. Storage areas and cabinets must be labeled to identify the hazardous nature of the products stored within.
6. Shelving above work areas must be kept free of chemical storage.
7. All storage containers must have lids or covers. The instructor must clean up spills immediately.
8. Chemicals stored on the floor must be in approved shipping containers.
9. Only authorized personnel are allowed in chemical storage areas or cabinets. **Students are never allowed in these areas.**
10. Exposure to heat or direct sunlight in chemical storage areas must be avoided.
11. Quantities of flammable and combustible liquids in excess of ten gallons (total) must be stored in approved flammable liquid storage cabinets. Doors to the cabinets should be closed after the chemical has been obtained for use. Quantities less than ten gallons may be stored in approved safety cans or original containers.

12. The maximum quantity of flammable and combustible liquids in storage and use must not exceed 120 gallons or 240 gallons in sprinkled areas.
13. When transferring flammable liquids between metal containers, the containers must be properly bonded.
14. Flammable liquids must be stored away from all sources of ignition.

Section 12: Safety Equipment

Safety equipment must be in good operating condition and must be functional at all times. The minimum safety equipment and procedures are as follows:

1. Eye wash fountains and deluge showers, if present or required, must provide tempered water at 55 to 90 degrees Fahrenheit. Eye wash fountains must be flushed weekly. Flushing records are to be maintained at the flushing station.
2. At least one 2A-20BC or larger fire extinguisher must be available for each 3000 feet of shop area. Travel distance to reach the extinguisher must not exceed 50 feet from anywhere in the shop area. A minimum of 36 inches of open area must be maintained for access to all fire extinguishers and fire pull stations.
3. Fire blankets must be easily accessible in shop areas.
4. Neutralizing materials (floor dry) and spill clean-up kits must be available for flammable liquids.
5. A minimum of 18 inches of clearance must be maintained between storage materials and fire sprinkler heads.
6. Safety guards and devices are to be maintained in place and operable at all times. Removal or non-use of safety equipment is **not** allowed.
7. Floor areas around machines should have a non-slip surface.
8. A minimum of 36 inches of open area must be maintained for access to all electrical boxes, utility controls and shut off devices.
9. Hazard lines demark safety zones around machines.

Section 13: Emergency Procedures

It is the responsibility of the instructor to establish emergency procedures specific to the shop areas and activities under their control. The minimum emergency procedure guidelines are as follows:

1. Post emergency phone numbers in each shop area.
2. Post first aid procedures in each laboratory area.
3. Never block access to emergency exits, equipment, or utility controls.
4. Keep all aisles clear.
5. Know emergency evacuation and fire emergency procedures.
6. Know where and how to use master utility controls to shut off gas, electrical and water supplies.
7. Clean-up spills immediately and thoroughly. Technology Shop instructors following standard clean-up procedures should only clean-up spills.

Section 14: Employee Training

Safety training will be held once a year and are to include all Technology Shop instructors and assistants. This will be done through SafeSchools (Vector Solutions) online training. Training will include, but is not limited to, the following:

1. Contents and location of the Technology Shop Safety Management Plan.
2. Technology Shop instructor responsibilities under the safety plan.
3. Employee Right-to-Know information including chemical inventory, material safety data sheets, chemical labeling and storage.
4. Potential hazards involved in using chemicals.
5. Signs and symptoms associated with exposure to hazardous chemicals.
6. The proper use and location of safety equipment.
7. Emergency procedures.
8. Information on the storage and disposal of hazardous materials.

Section 15: Recordkeeping

The District Office and individual instructors share recordkeeping responsibilities for the Technology Shop Safety Management Plan. Records will be retained for a minimum of three years and will include: noise level monitoring results, inspection records, hazardous waste disposal records and employee training records. Recordkeeping by individual instructors should be maintained in the shop area as part of this management plan. **The minimum recordkeeping responsibilities to be performed by instructors include all completed Technology Shop Safety Checklists, safety tests and worksheets contained in files for each student, and keeping their chemical inventory up to date on MSDSonline.** Instructors shall keep a log of employee and student accidents and injuries so that shop improvements can be determined. Corrective action as needed based on accident reports and near misses shall be taken. In the event of instructor turn-over, all records for that shop area should be provided to the new instructor.

Section 16: Future Equipment

The Department of Education bid specification criteria shall be used for procurement of all future equipment. Instructors should not assume that the equipment they are ordering meets the criteria.