**D: Training and Supervision Guidelines for K12 Makerspace Tools, Machines, and Equipment**

| **Device Class** | **1** | **2** | **3** | **4** |
| --- | --- | --- | --- | --- |
| **Description**  | Low power hand and bench tools | Medium power hand and small benchtop tools | Medium power industrial and construction-scale tools | Powerful portable and industrial tools |
| **User Training** |
| Regular track:New Users with little prior experience | * Pre-read/watch any available tool use guides and general shop safety rules
* In-person review of shop safety and tool use by Facility Manager or designated instructor
* Hands-on proficiency demonstration
 | * Complete Class 1 training
* Pre-read/watch any available tool use guides
* In-person review of tool use and safety by Facility Manager or designated instructor
* Hands-on practice and proficiency demonstration
 | * Complete Class 2 training
* Pre-read/watch any available tool use guides
* In-person review of tool use and safety by Facility Manager or designated instructor
* Hands-on practice and proficiency demonstration
 | * Complete Class 3 training
* Pre-read/watch any available tool use guides
* In-person review of tool use and safety by Facility Manager or designated instructor
* Extended hands-on practice and proficiency demonstration
 |
| Fast track:Users with shop experience  | * Pre-read any available tool use guides and general shop safety rules
* Hands-on proficiency demonstration/test
 | * Demonstrated Class1 proficiency
* Pre-read any available tool use guides
* Hands-on proficiency demonstration/test
 | * Demonstrated Class 2 proficiency
* Pre-read any available tool use guides
* In-person review of tool use and safety by Facility Manager or designated instructor
* Hands-on proficiency demonstration/test
 | * Demonstrated Class 3 proficiency
* Pre-read any available tool use guides
* In-person review of tool use and safety by Facility Manager or designated instructor
* Hands-on proficiency demonstration/test
 |
| **Supervision Authority granted to users** |
| Credential Users (passed proficiency demonstration at this level) | Facility:* Monitor
 | Facility:* Monitor
* Supervisor
 | Facility:* Monitor
* Supervisor
 | Facility:* Monitor
* Supervisor
 |
| **Supervision required by Users** |
| Trainees / New Users | Facility * Monitor
* Supervisor
* Manager
 | Facility * Monitor
* Supervisor
* Manager
 | * Facility
* Supervisor
* Manager
 | Facility * Supervisor
* Manager
 |
| Experienced / Credentialed Student Users | * Solo work permitted
 | * Buddy system highly recommended
 | * Buddy system required
 | * By Facility Manager, Supervisor, or Monitor
 |
| Professional Staff | * Solo work permitted at all tool levels, with buddy system highly recommended for higher class tool
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1. Training on tools, machines, and equipment

1.1 Prior to the use of shop tools, new users shall receive training and be informed of other available information and resources. Training shall cover, at a minimum:

1. Basic shop / fabrication safety, including appropriate attire and use of personal protective equipment;
2. Proper selection, use, adjustment, and cleaning of specific tools and equipment;
3. Inspection procedures prior to tool use;
4. Use and function of guards, shields, special fixturing, remote parts handling or retrieval, emergency stops, and any other safety features or components;
5. Reporting and removing defective or damaged tools from service;
6. Actions to take in the event of an emergency, accident, or observation of an unsafe condition.

 1.2 The Facility Manager, Supervisor, or Monitor is generally the source for new user training. Individuals with prior experience may, at the discretion of the Facility Manager, demonstrate proficiency with specific tools to qualify for authorization to work in that space. Facility Managers have overall authority to determine who may use their space.

1.3 All training should be documented and training records should be kept on-file locally. Training records must contain, at a minimum:

1. Name and ID number of trainee
2. Instructor
3. Date(s) of training
4. Tool and equipment competencies demonstrated.

A sample training record form is available in the document Training Record