

Recommended Guidelines for a Safe Shop Environment



Denver Public Schools
Industrial Technology

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General Safety Expectations

- Teachers are role models for students. It is important that they adhere to the safety instructions when they are working in the classroom. This includes wearing safety glasses with side shields, not just eyeglasses.
- Safety videos are available for checkout from the CTE department or Educational Resource Services. They should be viewed by the students each semester and reviewed whenever there is a classroom accident. The five videos are:
 - Basic Shop Safety
 - Stationary Power Tools, Volume I
 - Stationary Power Tools, Volume II
 - Portable Power Tools, Volume III
 - Portable Power Tools, Volume IV
- All large and small power tools must be in good operating condition. Safety guards must be in place, blades must be sharp, sanding discs/belts must not be worn and frayed, power cords and plugs must be in good condition. Power plugs must be grounded and the third prong must never be removed.
- Teacher should have an up-to-date inventory of all machines and power hand tools which includes the manufacturer, model, serial number, and DPS bar code number.
- All small power tools and all hand tools must be kept clean, sharp if appropriate, and stored correctly and safely.
- Any machine that is not running correctly must be disabled.
- Every stationary machine must be attached to a dust collector system.
- Compressed air nozzle must be an approved safety nozzle.
- All classrooms should have a downdraft table.
- There must be a pair of safety glasses for each person in the classroom.
- Safety glasses must have side shields.
- Safety glasses must be stored in approved sanitizing cabinets or assigned one per student and kept in individual student's lockers.
- Safety glasses must be worn by everyone in the shop whenever machines are in use.

- A few face shields should be in each classroom for tool grinder use.
- Hearing protection must be available for student use.
- Aprons and gloves must be available for use as needed.
- Every shop must have a first aid kit, eye wash station, fire extinguisher, spill kit for chemical cleanup, posted emergency telephone numbers, approved safety cabinet for flammable materials, and approved sanitizing cabinet for safety glasses.
- Teacher should outline walkways in the classroom with safety tape.
- Teacher should outline with safety tape where the machine operator stands for each machine in the classroom.
- Donated materials must be added to appropriate inventory.
- All wood and other materials must be properly stored.
- There should be appropriate safety signage throughout the classroom.
- Any machine not in use or no longer needed shall be removed from the shop. Teacher should prepare an Equipment Activity Report (EAR) and obtain principal's approval.
- Hand tools should be stored in tool storage cabinet or tool panel where all students have easy and safe access. This also provides the teacher with visual inventory control.
- Every class shall have a seating chart so that any substitute teacher has the ability to take accurate attendance and has better classroom control.
- Each teacher should have a minimum of three-day emergency lesson plans available if needed.
- Teacher should develop a mentor hotline among the district industrial tech teachers where teachers can share concerns, explore project ideas, share classroom management strategies, and share information about reliable substitute teachers.

Safety Instructions/Tests

- Safety Instructions/Tests can be accessed from the CTE website.
 - cte.dpsk12.org
- Safety Instructions/Tests are available in Spanish.
- Emphasize to students the importance of safety instructions and tests. Serious injury is usually the result of improper use of machinery.
- Teacher must go over all appropriate safety instructions with the students first thing in the semester.
- There are four general classroom safety instructions and tests. The first 50 items are the same on all four, with the remaining items being applicable to the individual class. The four general instructions are:
 - Electricity/Electronics Technology
 - Exploratory Technology (includes crafts, tech labs)
 - Metals Technology
 - Wood Technology
- Every student must take general test and pass at 100% before beginning any classroom project.
- Every student must take individual machine test and pass at 100% before working on that machine.
- Students must write out answer in addition to circling the correct answer to reinforce learning.
- Repeat students must take safety tests each year.
- Actual test must be kept on file for the appropriate school year. A permanent record of the student's score must be kept for 7 years.
- Teacher should keep a safety folder on each student.

Classroom Management

- Discipline procedures are the same as in any other classroom.
 - Talk with student
 - Remove student from classroom
 - Send student to student advisor/Asst. Principal
- If student poses a safety threat, s/he can be removed from the classroom immediately.
- Teacher sends a letter to the parents/guardians informing them of the student infraction.
- Classroom should be set up and ready for work to begin before students arrive.
- Additional assistance may be necessary for students with special needs or ESL students. Request assistance from bilingual students when communicating with non-English-speaking students.

Class Size for Industrial Tech Classes

- Class size is a site-based decision. In order to maintain a safe learning environment for students, class size should be based upon certain criteria.
 - Physical size of room
 - Number of adults in the room (teachers/paraprofessionals)
 - Industrial tech equipment in the room
 - Arrangement of industrial tech equipment

Classroom Maintenance

- Classroom must be clean and orderly. Sawdust and unused materials must be swept up at end of each class period.
- Hand tools must be cleaned and put away.
- Safety glasses must be cleaned and stored appropriately.
- Unused/non-working machinery should be moved out of the classroom.
- Teacher should perform a daily inspection of each machine for blade sharpness, alignment or guard operation.
- Power hand tools that do not operate properly must be removed from student use and repaired or replaced.
- Floor mops, brooms, bench brushes and dustpans must be available in all shops.

Dust Collection Systems

Daily

All floor inlets shall be inspected for screening to prevent oversize debris from entering the system.

The collector shall be turned on and operating properly, whenever shop equipment is being used.

All dampers on unused equipment and/or equipment that is not used daily shall be closed (this will ensure maximum performance of all other vacuum inlets).

When the system is shut down for the day, observe the “shaker “(it should come on automatically 3-5 minutes after the unit is shut down unless the shaker has a manual start).

Semi-weekly (frequency may be adjusted based on system use)

Empty the hopper.

Sawdust shall be placed in bags and placed in the trash dumpster.

Monthly (frequency may be adjusted based on system use)

Change filter media on return air systems.

Annual

Run collector through complete operation.

Fan/Blower	<p>Check with instructor for operator complaints.</p> <p>Check fan operation. Fan should be running with no excessive noise.</p> <p>Visually check discharge for dust coming out of the unit. Discharge can be either to the outside or re-circulate back into the room.</p> <p>Check for operation of the make-up air unit when the collector is running</p> <p>Inspect belt(s) for wear. Replace frayed or worn belts. Keep replacement belts on hand.</p> <p>Manually test all duct inlets. All inlets should pickup sawdust at tool and floor inlets.</p> <p>Check floor inlets for screening. Replace as required.</p> <p>Visually inspect all filter bags for tears in the media. Replace as required.</p> <p>Visually inspect all filter bags for proper seating of gasket at frame and connection point.</p> <p>Inspect all hoses for kinks or collapsed sections. Repair or replace as required.</p> <p>Check all guillotine dampers for proper opening and closing operation. Repair or replace as required.</p> <p>Inspect return air filters. Replace if required.</p>
Hopper	<p>Visually inspect all outside ductwork and flex connectors. Seal joints as required.</p> <p>Visually inspect inside of entire unit for water infiltration. Seal connection points as required.</p> <p>Visually inspect all access door weather stripping. Replace as required.</p> <p>Contract duct cleaning of entire system. <i>Proper completion of work must be verified at school site and evidence of such submitted to CTE Dept.</i></p>

Annual (cont'd)

Shaker/Timer Shaker should begin operation 3-5 minutes after unit is shut off.
Check "shaker" operation. You should hear the vibration of the unit.
Observe linkage operation from motor to the shaker.
Check for broken or misaligned linkage. Repair or replace as required.
Lubricate any bearings at shaker if necessary.

Repairs

Malfunction, breakage or any other condition requiring repair shall be reported to the Facility Manager immediately. (If the unit is not fully functional, shop tools shall not be operated).

Facility Manager shall immediately submit a work request to Facility Maintenance.

Responsibilities

Daily, weekly and monthly duties shall be performed by the School staff. They may be performed by either the Operations staff or the Teacher. (In either case, the Facility Manager is responsible for ensuring the tasks are complete).

Annual duties shall be performed by Facility Maintenance.

Duct cleaning shall be arranged by Facility Maintenance, through a service contract.

Payment of the service contract will be made by Career and Technology Education and/or Facility Maintenance.

Failure to perform any of the listed duties included in these guidelines may create major repair requirements and/or damage to the unit, resulting in excessive repair costs, unsatisfactory performance and loss of use for extended periods of time.

Basic Requirements for Paint Booths

- Sprinkler must be dropped into hood of booth.
- Sprinkler head should be installed in the venting ductwork.
- Floor must be a non-flammable material and sealed on sides and joints.
- No flammable cabinets are allowed inside the paint booth hood.
- No flammable material may be stored in the booth (or in the room, if applicable).
- All electrical switches and wiring must be explosion-proof.
- Interlock must be on either the spray gun or the entrance door.
- No heat source is allowed inside the booth (or room, if applicable).

Materials Storage

- Wood must be stacked in appropriate storage bins.
- Paint and other flammable materials must be stored in approved safety cabinet for flammable materials.
- Any donated materials must meet HMIS standards.
- Racks for wood or metal storage must align with the guidelines in the following memo and drawings.

DENVER PUBLIC SCHOOLS INTERDEPARTMENTAL COMMUNICATION

FROM: Mike Mayo
Stephen Finley

DATE: April 28, 2003

SUBJECT: Wood Racks for School Shop Class Storage

Denver Public Schools is committed to making the District *a safe place to learn and work*. In order to accomplish this goal all equipment that is to be considered for use in the schools must meet any safety guidelines that may be established.

The construction and anchoring guidelines for wood storage racks are very important if the school is going to have a safe storage area where our students can learn and work. The following information contains guidelines that are intended to assist the teacher in creating and maintaining a safe storage area for the 4X8 sheets of wood.

The facilities department did the drawings and we are hoping that these racks can be done in the schools that currently do not have storage racks for the Wood Shop as well as for Stage Craft in the high schools. One drawing was developed using wood as the material and the other drawing using metal.

Construction Services will need to approve all proposed rack plans prior to construction. The primary point of contact from Construction Services is Rich Cosgrove. He can be reached at 303-575-4120. A final inspection may be required after completion.

If you have any questions on these guidelines please call Risk Management at 303-764-3466.

GENERAL INFORMATION

General Description

The Wood Storage Rack is designed in sections. Each section will be 8 feet 6 inches in height, 12 inches in width and 3 feet 10 inches in depth. The rack will not exceed more than 4 sections or an overall width of 4 feet 10 inches. Each section will hold a maximum of 8 sheets of wood. NOTE: Two inch framing material is used in the drawing for the rack.

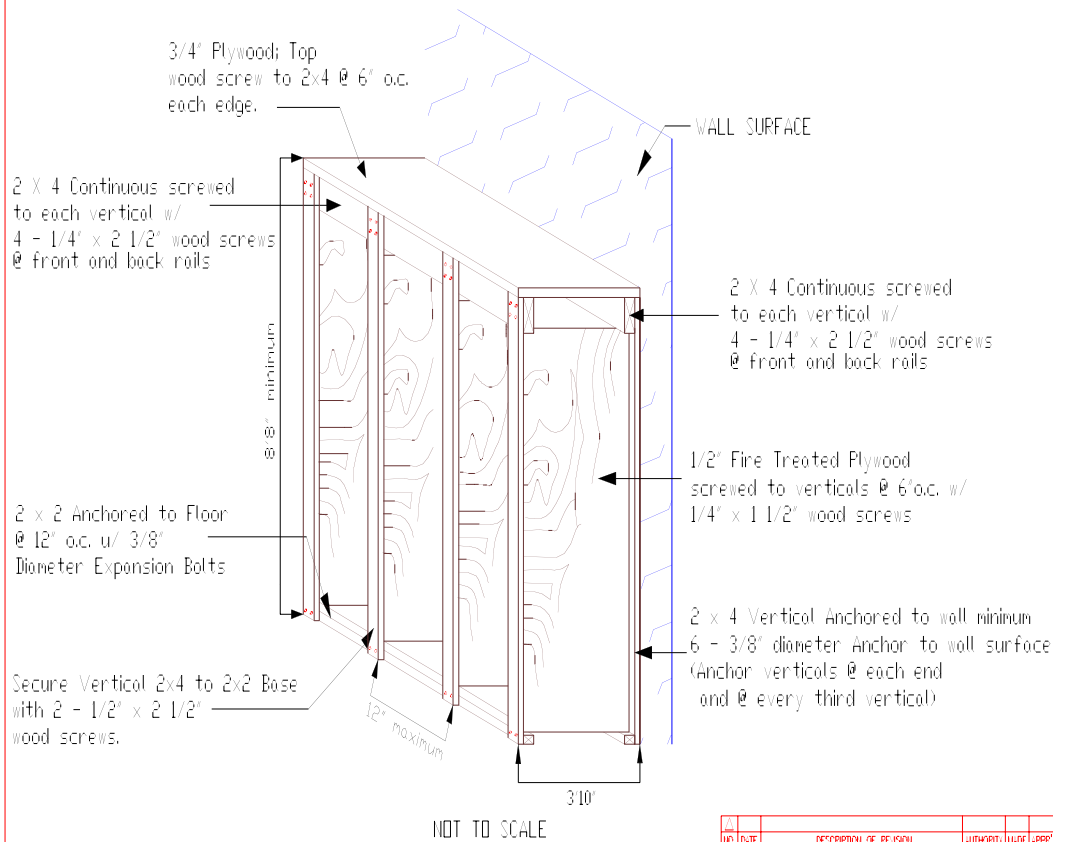
Anchoring Guidelines

1. The unit must be free standing – not hanging from the wall or ceiling.
2. The unit must be anchored to two surfaces, i.e., floor and ceiling or floor and wall(s).
3. All anchors must be either an “expansion” or “wedge” type anchor, a concrete-quick-bolt or drop in anchor, or cinder block double expansion shields or toggle bolts.
4. All anchors shall be 3/8” diameter or larger and no less than 3” in length.
5. Lead, plastic or fiber “plug” type anchors will NOT be allowed.
6. No anchoring to drywall or plaster surfaces without the approval of Maintenance or Construction Services.

Material Guidelines

1. All framing materials must be a minimum of 1” in size and shall be made of metal or wood.
2. Plastic will not be used.

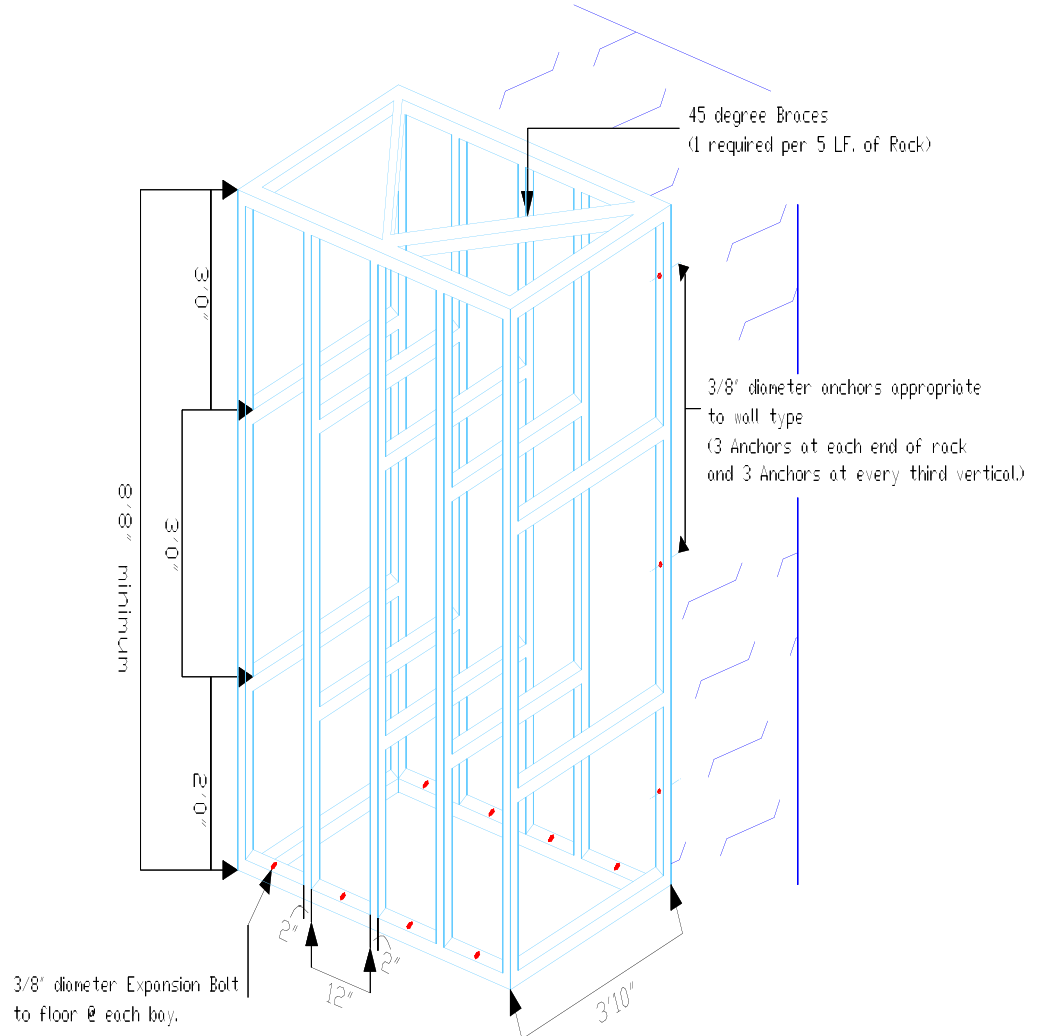
FLAT MATERIALS STORAGE RACK - WOOD
 * NOTE: ALL WOOD TREATED FOR FIRE RESISTANCE



NO.	DATE	DESCRIPTION OF REVISION	AUTHOR	DATE	APP'D.
DENVER PUBLIC SCHOOLS DEPARTMENT OF FACILITIES MANAGEMENT SCHOOL DISTRICT NO. 1 SCHOOL NO. SHE. NO. DENVER, CO					
Storage Units					
DENVER PUBLIC SCHOOLS DEPARTMENT OF FACILITIES MANAGEMENT APPROVED COPY OF DOCUMENT		DRAWN BY: DATE: 03/2003 NOT TO SCALE	Wood Store Rack		
Denver Public Schools 300 W. 34th Ave Denver CO 80204 30-95-4125			DWG. NO.	SHEET	
				I	
				OF	1

FLAT MATERIALS STORAGE RACK - METAL

2" Square Metal Tubing all welded



NO SCALE

NO.	DATE	DESCRIPTION OF REVISION	AUTHOR
		DENVER PUBLIC SCHOOLS DEPARTMENT OF FACILITIES MANAGEMENT SCHOOL DISTRICT NO. 1 SCHOOL NO. SITE NO.	
		Storage Unit	
		DENVER PUBLIC SCHOOLS DEPARTMENT OF FACILITIES MANAGEMENT PROJECT NO. 03-10-03 PROJECT NAME: No Scale	
		Metal Stor F	
		Denver Public Schools 300 N. Duane Denver, CO 80202-5741	DWG. 103

Procedures and Recommendations

Equipment Repair

- Call CTE office with specific information
 - make and model of machine needing repair
 - what is wrong with machine
- If cost effective, CTE office will order parts and/or repair
- Contact CTE office once repair is complete so vendor can be paid

Removing Unused/Non-working Equipment

- If equipment is in good working condition, publicize its availability in the CTE newsletter or via email to other teachers
- Complete an Equipment Activity Report (EAR) to have equipment moved to another location or disposed of

Blade Sharpening

- Take blades to Colorado Industrial Saw & Carbide
- Vendor will send bill to CTE office

Hazardous Material Removal

- Contact Risk Management Dept.

Classroom Accidents

- Follow school procedures
- Must complete an accident report - available from school secretary
- Review with students safety instructions for the machine on which the accident occurred

Custodial Requests

- Follow school procedures using form available from school secretary
- Keep dated photocopy for your records
- If no response in a reasonable amount of time, contact school administrator
- If no response again, contact Risk Management Dept. (if it's a safety issue)

Ordering

- Follow school procedures
- Contact CTE office if CTE budget is providing funds for a purchase

Shop Tips from your colleagues

- Purchase routers with "D" handles
- Keep an extra set of sharpened blades for planers and jointers
- Keep replacement belts for dust collection system on hand

Contacts

DPS Contacts

CTE Department
EGOS
1250 Welton
Denver, 80204

Karen Ann Ellis, Director	720-423-4868
Judy Morr, Specialist	720-423-4870
Donna Jiron, Specialist	720-423-4866
Christine Sandoval, Adm. Asst.	720-423-4706
Mary Jo Bruskwicz, Consultant	720-423-4709

Risk Management
Room 302, Ad. Bldg.

Mike Mayo, Safety Manager	720-423-3466
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DPS Warehouse
2800 W. 7th Ave.

Mike Lohmeier, Distribution Mgr.	720-423-4053
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Outside Contacts

Colorado Industrial Saw & Carbide
1211 Delaware
Denver, CO 80204
303-825-0048

AIS, Inc.
3900 Ulster St.
Denver, CO 80207
303-355-2391

Mountain & Plains, Inc.
3232 Quivas
Denver, CO 80211
303-480-9665

Porter Cable/Delta Factory Service Center – not a district vendor, but can be used in some circumstances
8175 Sheridan Blvd., Unit S
Arvada, CO 80003
303-487-1809