Chemical Issues – Administrative Summary

Chemical handling and storage are regulated by federal, state, and local regulations. This includes chemicals used by custodial staff, M&O, bus yards, teachers, science teachers, and anyone else that uses chemicals. Help with chemical questions is available from the JPA.

1. **Required Written Programs**
   - **a.** Hazardous Materials Communication Program (Right to Know laws)
     - **i.** This program is required by CalOSHA and must be written. It includes:
     - **ii.** Container labeling (every container labeled with contents and hazard)
     - **iii.** Employee access to a Safety Data Sheet (SDS) for each hazardous chemical (for everything including Windex, Paint, science lab chemicals, etc… unless it is labeled as non-hazardous)
     - **iv.** A written inventory of all hazardous materials
     - **v.** How to handle contractor chemicals and also handling non-routine tasks
     - **vi.** Documented employee training for all chemicals they are exposed to.
   - **b.** For school science departments that handle a large variety of lab chemicals, an additional written plan called a "Chemical Hygiene Plan" is required by the state. This plan details the safe handling of science chemicals by department personnel. The department chair is usually in charge of this plan.
   - **c.** For any chemicals exceeding a certain threshold (liquid - 55 gallons, solid - 500 pounds, or compressed gas - 200 cubic feet), a "Hazardous Materials Business Plan" is required and must be turned into the county. Other plans may be required depending on what materials are on site. This plan is best handled by a consultant.

2. **Safety Data Sheets (SDS)**
   - **a.** There must be a current SDS for every hazardous material on site.
   - **b.** Delegate the upkeep of the SDS files to a specific person.
   - **c.** Keep SDSs for all materials in at least 2 places. Often when there is a spill in one area, you can't get to the SDSs (such as a spill in a science lab). There should be a duplicate set at another location to consult. The backup set is usually kept in the M&O office.

3. **Chemical Storage**
   - **a.** Proper storage includes (among other things) earthquake lips on shelving, chemical cabinets for flammables and corrosives, segregated storage, proper ventilation, and more. This must be covered during training. The district must provide the proper storage capabilities.
   - **b.** The areas must have documented routine inspections, usually done by the department head.
   - **c.** Contact the JPA if you have storage questions.

4. **Chemical Purchases**
   - **a.** There usually an SDS sent with every shipment of a hazardous material. It must make its way to the person in charge of the SDSs. This is usually the M&O director or specific department head .
   - **b.** Some chemicals are too hazardous for school employees. Which chemicals meet this criterion must be determined on a case by case basis, usually by the department head. Typically, they would be extremely flammable, reactive, toxic, or corrosive materials. It is advantageous to have a third party review your chemicals to help identify these chemicals.

c. Certain art chemicals are prohibited in K-6 classrooms. These are found at http://www.oehha.ca.gov/education/art/index.html . The most recent list is posted on this website.

d. Some chemicals are too hazardous for students in science labs. A list of these chemicals is found in the Comprehensive School Science Handbook. Every science teacher should have a copy of this handbook. The JPA can get copies of this handbook for you.

e. Chemicals are sometimes bought by M&O employees at the local hardware store. Sometimes teachers bring in chemicals from home and store them in the classroom. These also need SDSs. Be sure this is covered in training and is checked during routine inventories.

5. **Chemical Spill** (should be included in the Comprehensive School Safety Plan)
   a. First, identify the chemical (check the SDS). If the chemical is unknown or the SDS is not available for a chemical with unknown properties, assume it is toxic, flammable, corrosive, and reactive.
   b. Assess the extent of the spill and the probable exposure hazard. If there is the possibility of an inhalation exposure and the chemical is unknown or toxic, evacuate everyone downwind of the spill to a safe location, depending on wind direction. Don't rely on odor or clouds as an exposure indicator for toxic materials – it you know it is toxic or it is unknown, evacuate.
   c. If the spill is of a flammable liquid/gas, eliminate spark sources. This step should only be done by trained personnel. For large flammable spills, evacuate the site in case a fire or explosion occurs.
   d. If possible, ensure a liquid spill will not enter storm drains or runoff water.
   e. Decide whether to clean up the spill yourself or call in county hazmat. For help with this decision, call the JPA (209)536-2035. When in doubt, call county hazmat.
   f. If any chemical leaves the site (as a liquid, solid, or as a gas), you need to notify county health promptly. Call the JPA for advice on how best to do this.

6. **Exposure Complaints**
   a. Take all exposure complaints very seriously. OSHA does.
   b. Determine what chemical is involved. If there is a complaint of a sudden unidentifiable odor, assume it is toxic and remove people from the area until the odor is identified and the area is deemed safe.
   c. If there are any sudden symptoms due to a sudden unidentified chemical (coughing, nausea, severe headache, rash…), send the affected personnel to the emergency room immediately and evacuate the area. Then treat the incident as a spill as indicated above.
   d. For a chronic, low concentration complaint, contact the JPA for assistance. This can usually be handled by an investigative inspection, but air sampling is occasionally recommended. That may run several hundred dollars.

7. **Contractors**
   When contractors do work at your site, they must follow your chemical procedures and requirements. Ask for SDSs before the proposal is accepted and check to be sure that the materials to be used are appropriate for schools. The M&O director should know this, or check with the JPA. Keep the SDSs with the permanent records for the job.

8. **Chemical Waste**
   Wastes must be handled according to specific regulations by trained personnel (annual training is required). For less than 25 gallons per month, an account can be set up at the Household Hazardous Waste. For more than that or for a one-time disposal, call a disposal company.

Chemical Handling Summary for M&O

Here is information for M&O directors in addition to the administrative summary. This is only a general summary/tip sheet and does not take the place of comprehensive training.

1. **Personal Protective Equipment (PPE)**
   - **a.** Must be provided entirely by the district
   - **b.** The district is responsible for determining what PPE is appropriate
   - **c.** Safety Glasses
     - **i.** Regular prescription glasses are usually not safety glasses. Safety glasses are marked with an "ANSI Z87" somewhere on them.
     - **ii.** Safety glasses do not provide adequate splash protection. Use goggles and/or a face shield.
   - **d.** Respirators
     - **i.** If respirators are used (either voluntary or required), a written program is required. This program includes a medical release to wear a respirator, proper selection, care and use. This program is best initiated by a consultant through the JPA.
     - **ii.** This does not include simple dust masks. It does include half face respirators sold in hardware stores (rubber with snap-in filters).
   - **e.** Gloves
     - **i.** Don't use latex gloves. They have become an allergen problem for many people. Nitrile gloves are a better choice.
     - **ii.** Use chemical gloves at least for corrosive chemicals and organic solvents.

2. **Eyewashes/Safety Showers (EW/SS)**
   - **a.** Eyewashes are required where there is the possibility of chemical eye exposure (mixing areas, science labs, transportation, pool chemical areas, Ag shops…)
   - **b.** Showers are required where there is a possibility of significant skin splashes. This may include the same areas as in (a), but only when enough chemical is present to be a significant skin splash hazard. This is a case by case basis.
   - **c.** EW/SS must be within 10 seconds of uninterrupted travel from the hazard. One EW in the middle area of a science pod would be acceptable if no concentrated corrosives are handled, but an EW in the classroom is preferred.
   - **d.** EW must be plumbed, operated quickly (lever), and stay on. The squeeze bottle type is not an acceptable substitute. It may only supplement.

3. **Chemical Storage**
   - **a.** Chemical storage can be complex. Use the checklists provided to verify safe storage.
   - **b.** Compressed gases are often mishandled. Pay special attention to students handling Helium cylinders for filling balloons.
   - **c.** Label EVERYTHING, especially waste. Waste has special regulations. Get training on what those regulations are.

d. A written inventory is a state requirement. Keep your inventory up to date, complete with current SDSs.

4. **Training**
   - **a.** Train your staff on chemical handling before they touch anything. A chemical injury to someone without any training is a serious OSHA citation.
   - **b.** If you get a new product or replace a product with something else, provide training.

5. **Spill Control**
   - **a.** What you need is based on what you handle.
   - **b.** For liquids, especially flammable liquids, kitty litter works. You may need portable absorptive dikes (PIGS). Keep this all in a plastic garbage can and then use the can to shovel the kitty litter into. Solids can go into any container that won't react with them. Avoid simple plastic bags as they break too easily.
   - **c.** If your chemicals are near a drain, you may need a drain cover. In a pinch, a plastic sheet over the drain will work. Take every precaution to ensure that no chemical ever leaves the site, as government agencies may cite you for illegal dumping (up to $25,000 per day).
   - **d.** Employees must have proper training before attempting to clean up spills. Spilled material may act differently (flammable spark sources, reactive surfaces, etc…)

6. **Chemical Disposal**
   - **a.** Very few chemicals can go down the drain. Don't do it unless you know for a fact you can do this.
   - **b.** No liquids can be thrown in the trash (such as old paint, partial containers…). Latex paint can be dried out and then thrown away.
   - **c.** Empty containers less than 6 gallons in size can be thrown in the dumpster. Larger than that needs to go to a recycler.
   - **d.** If you have less than 25 gallons a month of material to dispose of, you can open a commercial account at the local Household Hazardous Waste. Call the JPA for assistance is setting up an account. This is the cheapest way to dispose of it.
   - **e.** For one time disposals of larger amounts, contact a disposal company.
   - **f.** Universal waste (fluorescent bulbs, batteries, e-waste…) cannot go in the trash. Get training on how to handle these materials.

7. **Chemical Storage Signs**
   - **a.** For any materials listed on the HMBP (see the administrative summary), NFPA signs must be provided on the outside of the building or on the tank. The JPA or fire department can help you determine what numbers go in the colored boxes.
   - **b.** For rooms that are used as chemical storage, it is good practice to provide NFPA signs as a service to emergency responders.

Art Hazards Cover Letter

December 12, 2003

Thank you for contacting the Office of Environmental Health Hazard Assessment (OEHHA) regarding art and crafts materials.

California Education Code Section 32064 prohibits schools from ordering or purchasing any product that contains toxic or carcinogenic substances for use in grades K-6. The law also restricts the purchase of such products in grades 7-12, allowing the use only if the product bears a label informing the user of the presence of hazardous ingredients, the potential health effects, and instructions for the safe use. This restriction applies whether or not the product is included on the list of unacceptable art and crafts supplies (Education Code Section 32065).
OEHHA is required to develop a list of art and crafts materials "which cannot be purchased or ordered" for use in kindergarten and grades one through six (Education Code section 32066). Accordingly, we are providing you with a list of unacceptable products -- those that "cannot be purchased or ordered." These products are listed in the Arts and Creative Materials Institute's (ACMI) April 17, 2003 list of products that require a "Health Label/Caution Required Seal".

Additionally, we may include products that have been recalled as reported by the US Consumer Product Safety Commission.

In addition to using this list to determine which products cannot be purchased, we suggest that you inform the purchasers of school supplies that in order to comply with Education Code 32064 they must be sure that the materials they purchase are from manufacturers who will assure that their products are in compliance with both Health and Safety Code Section 108500 et seq. and Health and Safety Code Section 25249.5 et seq.

Health and Safety Code Section 108500 et seq. regulates the warning labels that are required on art or crafts materials; Health and Safety Code Section 25249.5 et seq. is the Safe Drinking Water and Toxic Enforcement Act of 1986, otherwise known as Proposition 65. Proposition 65 requires warnings for chemicals known to the State of California to cause cancer or reproductive harm. If your purchasers cannot obtain assurances from the manufacturers that the products they purchase are properly labeled, they may wish to seek alternative suppliers.

We solicit the aid of school administrators and educators in updating the list of unacceptable materials by encouraging them to inform us of any products that bear health warnings, so that we may include those products in our updates of the list of unacceptable materials. If you wish to provide us with information, please contact Laurie Monserrat at 1001 I Street, P.O. Box 4010, Sacramento, CA 95812. Email: lmonserr@oehha.ca.gov

If your purchasers would like a list of products that are certified as properly labeled and non-toxic, they can contact ACMI and request the list of certified non-toxic art and crafts supplies. ACMI's address is 1280 Main St 2nd Floor, PO Box 479, Hanson, MA 02341. Phone: (781) 293-4100. Web address: http://www.acminet.org

Please feel free to give our office a call at (916) 324-2829 if you have any questions.
Sincerely,
Laurie Monserrat

Shop Safety Inspection Checklist

District:_____ **Site:**_____ **Date:**_____

Area:_____ **Contact Person:**_____

Use the "Comments " column to record Work Order numbers, dates that tests were conducted, or comments.

		Y	N	N/A	Comments
Chemical Storage & Safety					
1	All containers properly labeled with name, date, and hazard.				
2	All chemical containers securely closed and stored properly when not in use.				
3	Chemicals segregated and stored by compatibility.				
4	All chemical containers are clean and not leaking.				
5	No chemicals are stored above eye level.				
6	Secondary containment used where appropriate.				
7	Flammable storage cabinet used if more than 10 gal of flammables present.				
8	Chemical storage areas free of ignition sources.				
9	Flammable liquids in containers over 4 L are in approved metal safety cans.				
10	Flammables cabinets are properly labeled FLAMMABLE: KEEP FIRE AWAY.				
11	Flammables in drums are grounded and bonded.				
12	Flammable cabinets have self-closing doors, a 2" lip, 1 1/2" double wall metal or 1" plywood with no openings.				
13	Oily rags are stored in a metal can with a spring loaded lid.				
14	Chemical inventory is available and current.				
15	Access to poisons and other dangerous materials is restricted.				
16	No food or beverages unless adequately separated from chemicals.				
17	Chemicals purchased in amounts that can be used within a reasonable time.				
18	Chemical stocks purged of old, out-dated, and unusable chemicals.				
19	Written Hazard Communication plan is available.				
20	SDSs are available and current for each chemical.				
21	Spill kit is available and stocked.				
22	NFPA "diamond" system placards on building and readable from 50' if over 55 gal. of hazardous liquid present.				
Compressed Air and Compressed Gases					
1	NFPA "diamond" signs readable from 50' are affixed buildings containing compressed gases.				

Inspection Performed by:_____

District:_____ **Site:**_____ **Date:**_____

Area:_____ **Contact Person:**_____

		Y	N	N/A	Comments
2	Air compressors equipped with pressure gauges and pressure relief valves.				
3	The belt drive system including pulleys is fully enclosed.				
4	Air compressor has a current permit posted nearby.				
5	Air Compressors have a sign indicating auto-start function.				
6	Compressed air piping, hoses and fittings in good condition.				
7	Compressed air 30 psi or less for machine/parts cleaning, 10 psi for clothing.				
8	Compressed air cleaning nozzles with chip/particle deflection device.				
9	Gas cylinders stored outside are secured, protected from direct sunlight, standing water, and contact with soil.				
10	When stored indoors, gas cylinders kept away from falling objects,elevators, stairs, exits, and ramps.				
11	Gas cylinders stored away from high heat, flames, flammables/oxygen are 20' from combustibles,etc.				
12	Oxygen and Acetylene in storage are separated by 5' noncombustible barrier or by 20 feet.				
13	Oxygen cylinders are limited to 1500 cf (unsprinklered) or 3000 cf (sprinklered) per fire area.				
14	Fuel cylinders are limited to 1000 cf (unsprinklered) or 2000 cf (sprinklered) per fire area.				
15	Cylinders are securely held with no more than 3 cylinders held with a single chain.				
16	Liquefied gas cylinders (acetylene) always shipped and stored valve-end up.				
17	Gas cylinders (not the caps) are legibly marked as to their contents.				
18	Gas cylinders lacking obvious defects, leaks, damage, etc.				
19	Valve caps used when cylinders not in use or when being transported.				
20	Gas cylinders transported on cylinder carts with the safety chain on.				
21	Non-sparking strap wrenches are provided to remove stuck caps.				
22	Teflon tape is not used on any CG fitting where the seal is made by metal-to-metal contact.				
23	Gas cylinders, valves, couplings, regulators kept free of oil and grease.				
24	Proper type of regulator used for type of gas cylinder in use.				
25	Oxygen regulators state "OXYGEN - USE NO OIL".				
26	Cylinders not having fixed hand wheels have the key on the valve stem.				

Inspection Performed by:_____

District:_____ **Site:**_____ **Date:**_____

Area:_____ **Contact Person:**_____

		Y	N	N/A	Comments
27	Gas cylinders when in use are protected from sparks, slag, or flames by either distance or a shield.				
28	Torches have backflow devices and flame arrestors.				
29	Empty gas cylinders labeled "Empty," valves closed, and caps on.				
General Safety					
1	All areas properly illuminated.				
2	Temperature and humidity seem to be within acceptable ranges.				
3	Noise levels are within acceptable limits or engineering controls established.				
4	Areas with high noise levels posted and hearing protection required to be used.				
5	Areas free of visible fungal/mold growth and associated odors.				
6	Work areas clean, sanitary, and orderly. (garbage disposed properly, etc.)				
7	Appropriate signs posted (First aid kit, safety shower, fire extinguisher, etc.).				
8	Hand tools have specific and secure storage places.				
9	Hand washing soap and towels available.				
10	All materials are stored in a safe manner and prevent tipping or damage.				
11	Heavy objects stored below 5 ft. unless secured and stepladder provided.				
12	Stepladder or stepstool available & in good condition for high storage access.				
13	Vacuum systems used when possible instead of blowing or sweeping dusts.				
14	Work area properly ventilated for type of equipment or chemicals in use.				
15	Air intake areas free of odor causing materials or hazardous chemicals.				
16	Work practices observed during inspection done safety.				
17	Other hazards identified and labeled (electrical rooms, piping, etc.).				
17	Hazardous Material Business Plan, if required, is in the shop office with current training records.				
18	Eyewash within 10 second travel time,unobstructed and inspection tag properly signed off.				
19	Safety Shower is within 10 second travel time, unobstructed, and inspection tag properly signed off.				
Hazardous Waste					
1	Waste storage areas designated, secure, and a sign posted.				
2	Waste containers properly labeled "HAZARDOUS WASTE", accumulation date, contents, generator name and address, hazards.				
3	Waste containers compatible with waste to be stored.				

Inspection Performed by:_____

District:_____ **Site:**_____ **Date:**_____

Area:_____ **Contact Person:**_____

		Y	N	N/A	Comments
4	Only compatible chemical wastes stored in the same container.				
5	Waste containers kept closed except when adding waste.				
6	Waste containers have secondary containment.				
7	Hazardous Waste storage has documented weekly inspections.				
8	Used oil has Hazardous Waste label and "USED OIL" label.				
9	Used oil/fuel filters are fully drained before placing in a sealable drum labeled "USED OIL FILTERS" and an accumulation date.				
10	Spent absorbents are handled has hazardous waste and labeled properly.				
11	Containers are fully emptied or are handled as hazardous waste.				
12	Only containers 5 gallons or less are thrown in the trash.				
13	Lead-Acid (car) batteries are stored out of the weather and on a pallet.				
14	No more than 10 lead/acid batteries are disposed per year.				
15	Damaged/leaking lead/acid batteries are stored in a sealed container.				
16	Shop/site has EPA ID#.				
17	Waste is handled by milkrun or manifest and a record of each pickup or dropoff is kept for 3 years.				
18	Waste is not kept for more than 180 days after 27 gallons are accumulated.				
19	Waste is never held more than one year.				
20	Annual Hazardous Waste Training records for handlers is available for inspection.				
Personal Protective Equipment (PPE)					
1	Appropriate safety glasses are available and used if impact hazard present.				
2	Appropriate goggles are available for corrosives and abrasive blasting operations.				
3	Appropriate cut gloves are available when using hand cutting tools.				
4	Appropriate hearing protection available and used if hazard present (over 80 dB).				
5	Appropriate foot protection available and used when handling CG cylinders, drums, and similar hazards.				
6	Protective clothing (coveralls, aprons, etc.) available and used for corrosives and UV protection (welding).				
7	Respirators are not needed or used in the shop by anyone.				
8	PPE is properly stored, clean and in good condition.				
9	Correct shade is used for Oxy-fuel welding (4 - 8).				

Inspection Performed by:_____

		Y	N	N/A	Comments
10	Correct shade is used for MIG/TIG/SMAW/Plasma welding (7 - 14).				
11	Welding observers are required to wear eye protection to prevent "welder's flash" injuries.				
12	Appropriate leather gloves are used for welding slag protection.				
13	Welders wear a headcap and hair is tied back.				

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NFPA 704 RATINGS and ID NUMBERS for COMMON HAZARDOUS MATERIALS

	Blue (Health)	Red (Fire)	Yellow (Reactivity)	White	UN/NA#
Acetone	1	3	0		1090
Acetylene	0	4	3		1001
Alcohol, Ethyl	0	3	0		1170
Alcohol, Methyl	1	3	0		1230
Ammonia, Anhydrous	3	1	0		1005
Antifreeze (Ethylene Glycol)	1	1	0		1142
Butane	1	4	0		1011
Calcium Hypochlorite	3	0	1	OX	2880
Cal Hypochlorite, solid	3	0	1	OX	2208
Carbon Dioxide, Liquid CO_2	3	0	0		2187
Chlorine Gas	4	0	0	OX	1017
Diesel Fuel	1	2	0		1993
Epoxy resins	2				
Formaldehyde, solutions	3	2	0		2209
Formaldehyde, flammable sol.	3	4	0		1198
Gas, Natural	1	4	0		1971
Gasoline, Automotive	1	3	0		1203
Hydrogen Chloride, anhydrous	3	0	1		1050
Hydrogen Chloride, refrigerated	3	0	1		2186
Jet Fuels (Jet A & Jet A-1)	0	2	0		
Jet Fuels (Jet B & JP-4)	1	3	0		
Jet Fuels (JP-5)	0	2	0		
Kerosene	0	2	0		1223
Lacquer Thinner	0	2	0		
Lime (Calcium Oxide)	3	0	1		1910
Methyl Ethyl Ketone	1	3	0		1193
Motor Oil	0	1	0		1270
Muriatic Acid (Hydrochloric)	3	0	0		1789
Nitic Acid Fuming	4	0	1	OX	2032
Nitric Acid >40%	4	0	0	OX	2031
Nitric Acid $\leq$40%	3	0	0		1760
Nitrogen, Refrigerated liquid	3	0	0		1977
Nitrogen, Compressed gas	0	0	0		1066
Oxygen, Refrigerated liquid	3	0	0	OX	1073
Oxygen, Compressed Gas	0	0	0	OX	1072
Paint, Latex	1	0	0		
Paint, Oil based	1	2	0		1263
Paint, Lacquer	2	3	0		1263
Perchloroethylene	2	0	0		1897
Petroleum Solvent/Naphtha	1	4	0		1271
Propane	1	4	0		1978
Pool Chlorine/Bleach Sodium Hypochlorite <50%	3	0	0	OX	1791
Sodium Hydroxide	3	0	1		1824
Stoddard Solvent	2	2			1271
Styrene	2	3	2		2055
Sulfuric Acid	3	0	2	~~W~~	1830
Waste Motor Oil	Not Rated				

Eyewash and Safety Shower Summary
ANSI Z358

It should be understood that compliance is not a once-a-year or once-a-month thing. Compliance is an all-day, every-day requirement. Accordingly, emergency showers and eyewashes are required to be activated weekly, with a monthly signoff on the inspection tag that must remain attached to the unit.

- Emergency showers, eyewashes, and combination showers/eyewashes must be accessible within 10 seconds, must be on the same level as the hazard, and the path of travel shall be free of obstructions (Sections 4.5.2, 5.4.2, 6.4.2, 7.4.2).
- Emergency shower, eyewash, and combination shower/eyewash stations should be designated by highly visible signage (Sections 4.2, 5.2, 6.2, 7.4.3) positioned so that the sign shall be visible in all areas served by that specific equipment.
- Control valves on emergency showers, eyewashes, and combination shower/eyewash equipment should be designed to enable them to be moved from "off" to "on" in one second or less and to remain open until intentionally closed (Sections 4.2, 5.2, 6.2, 7.2).
- Spray nozzle outlets on eyewashes and eye/face washes should be protected from airborne contaminants when idle. Whatever means is used to protect them should not require a separate motion (from equipment activation) to remove the protection for equipment use (Sections 5.1.3, 6.1.3).
- Plumbed and self-contained eyewash equipment must be capable of delivering flushing fluid to the eyes at a flow of not less than 1.5 liters per minute (.4 gpm) for the full, required, 15-minute irrigation cycle (Sections 5.1.6, 6.1.6).
- For eyewashes, a means must be provided to ensure a controlled flow of flushing fluid to both eyes simultaneously. (Section 5.1.1) With respect to eye/face washes, the standard includes both eyes and face (Section 6.1.6).
- There should be a minimum distance of 6 inches between the eyewash outlet nozzles and any adjacent obstruction, such as walls, etc. (Section 5.4.4).
- The proper height for eyewash or eye/face wash heads is between 33 inches and 45 inches above the floor (Section 5.4.4).
- Drench showers must deliver a minimum of 20 gpm flow (Section 4.1.4).
- The proper height for drench shower or combination drench shower and eyewash shower heads is between 82 inches and 96 inches above the floor (Section 4.1.2).
- Drench shower flow patterns should be a minimum of 20 inches wide at 60 inches above the floor (Section 4.1.5).

- There should be no barrier closer than 16 inches from the center point of the installed emergency drench shower or combination shower and eyewash (Section 4.1.5).
- Combination shower and eyewash equipment is subject to the same individual component requirements, even when those components are used simultaneously. That means, among other things, that flow and pattern requirements for the shower and eyewash remain in effect during simultaneous use. Sufficient pressure and volume of fluid to "drive" both features is necessary (Section 7.4.4).
- Combination shower and eyewash equipment must be capable of simultaneous use of the shower and eye or face wash by the same user (Section 7.4.4).
- Flushing fluid must be tepid, which by the standard, established guideline is between 60 degrees F and below 100 degrees F for the full 15-minute use cycle (Section 7.4.4).