

## Superintendents, Principals, Teachers . . . Do You Know the Law?

[Linda M. Stroud, Ph.D.](#)



[\(Download printer-friendly pdf version\)](#)

---



Linda M. Stroud, Ph.D.; NRCC-CHO  
Manager of Environmental Safety and Health Certification  
Advanced Safety Certification  
OSHA General Industry Outreach Trainer  
Bloodborne Pathogen Instructor Certification  
President, Science & Safety Consulting Services, Inc.  
[www.sciencesafetyconsulting.com](http://www.sciencesafetyconsulting.com)

It is the legal and professional obligation of all school personnel to provide a safe and healthy learning environment for students and staff. Administrators, staff and students are responsible for developing and following safety protocols and regulations in the science laboratory. Each must maintain a concerted effort to avoid the apathetic and laissez-faire attitudes which are a major cause of accidents in the laboratory. Effective laboratory safety is not possible without the continued education and commitment of all stakeholders involved in learning and experimentation in the scientific environment. The ability of students to solve problems using science inquiry is a vital step in the intellectual development of future educators, medical and science professionals and citizens in general. There is significantly more involved in ensuring science safety than merely presenting a set of rules and regulations to the class. Motivation, dedication and understanding of the “whys of safety” are essential in the development of a safe and effective school laboratory program.<sup>1</sup>

**Legal issues of school laboratory safety are primarily determined by laws, codes, regulations and professional standards.**

- A **law** is a statute enacted by a legislative body (e.g., The NC General Assembly). There are both federal and state laws that operate and regulate activity and behavior in the laboratory environment. In North Carolina these laws are referred to as General Statutes (GS) followed by a series of numerals or letters (e.g., GS §115C – Elementary and Secondary Education Act).
- A **code** becomes a law when it is either adopted by an existing statute or referenced by an existing code written under an existing statute (e.g., county, city, building, fire codes).
- A **standard** is the criteria by which something may be tested or measured. For instance, American National Standards Institute (ANSI) Z87.1 is the standard by which eye protection devices are measured.
- A **regulation** is a legislation promulgated by an administrative agency given this authority by a legislative body ((e.g., Occupational Safety and Health Administration (OSHA) 29 CFR §1910.1450)).

### Occupational Safety and Health Act

When Congress passed the Occupational Safety and Health Act of 1970, it helped clarify and recognize many health and safety concerns. The purpose of OSHA is to ensure that employers provide a safe and healthy working environment for employees, including all teachers—public, charter and private. Although OSHA covers employees but not students, prudent school personnel will provide a safe and healthy learning environment for students by following federal, state and local health and safety codes / regulations.

Currently, OSHA (Occupational Safety and Health Administration) has approved state plans for 24 states and two territories. The state plan must be equal to or more stringent than the Federal OSHA Plan. Many OSH State-Plan states (North Carolina, South Carolina, and others) cover private and public sector employers / employees as required by Federal OSHA. North Carolina adopted the federal OSHA regulations as is except, North Carolina enacted more stringent permissible chemical exposure levels for employees. In addition, professional standards will always apply in terms of liability if an accident occurs.

There are over 100 OSHA standards that are applicable to K-16 schools – most requiring professional development for employees. Professional development is required before an employee reports to duty rather than after an accident occurs. While “after the accident” professional development may prevent future accidents, it does nothing to prevent accidents that have occurred or provide aid in liability protection for employers or employees. Key OSHA standards that effect schools requiring professional development for employees and a written program are:

- **29 CFR §1910.132 Personal Protective Equipment, General Requirements Standard**  
Requires a hazard assessment to determine PPE needs and employees must be trained in use and care of PPE. Teachers must also train their students.
- **29 CFR §1910.1030 (1991) Bloodborne Pathogens Standard**  
Employers are required to develop a plan to control bloodborne pathogen exposure (such as HIV and Hepatitis B) and universal precautions to prevent exposure to employees. All other body fluids are covered under this standard as well.
- **29 CFR §1910.38 Emergency Action Plan**  
Requires addressing of emergencies such as fire, toxic chemical spills releases, weather and weather related emergencies and others. Emergency evacuation routes and emergency action training is required for employees and, of course, students. Homeland security and many states have added requirements to address issues such as school violence and terrorism.
- **29 CFR §1910.1450 (1990) - Occupational Exposure to Hazardous Chemicals in Laboratories Standard**, OSHA defines a “Laboratory” as a facility where the “laboratory use of hazardous chemicals” occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a non-production basis.” A hazardous chemical is defined as a “chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term “health hazard” includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic systems, and agents which damage the lungs, skin, eyes or mucous membranes.”

In addition to these standards, there is one standard that covers all hazardous conditions. This is known as the: **General Duty Clause (GDC), Section 5(a)(1) of the William-Steiger OSH Act 29 CFR 654(a)(1):**

“Each employer shall furnish to each of his (sic) employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.” OSHA inspectors can issue a citation to an employer for any workplace hazard not covered by other OSHA standards.

OSHA does classify schools as an industry. The Standard Industrial Classification (SIC) Code given to schools by OSHA is 8211. OSHA does inspect schools. These inspections are either random planned selection by NC OSH, complaint-based by an employee or parent or due to an accident. In 2007, NC OSH conducted 18 inspections in North Carolina schools citing 112 standards violations and assessed \$22,007 in fines.<sup>2</sup>

## The Laboratory Standard

### State Board of Education

The State Board of Education required school systems to send a copy of their chemical hygiene plans (CHP) to the North Carolina Department of Education by January, 31, 2007. The chemical hygiene plan is not a requirement by the State Board of Education but a requirement of Federal and State Occupational Safety and Health Administrations (OSHA) as of January 31, 1991. Furthermore, this CHP is required for all middle and secondary schools. Elementary schools that have a separate laboratory for science also require a CHP. Many

teachers believe they do not use chemicals or they are harmless because the chemicals they use are household chemicals. Household chemicals are also hazardous.

### **29 CFR §1910.1450 (1990) Occupational Exposure to Hazardous Chemicals in Laboratories Standard**

This plan requires a CHO and details how each employee will be protected from overexposure to any hazardous materials, describes specific work practices and procedures in the laboratory to minimize employee risk, as well as the requirement of a Chemical Hygiene Plan, specifies laboratory safety and emergency equipment, employee information and training, hazard identification and recordkeeping. This regulation applies specifically to school science laboratories and must be followed as written to limit institutional and personal liability. Compliance to the requirements of this standard is mandatory. OSHA could site the school or LEA for a willful violation in the absence of a CHP or CHO.

### **OSHA 29 CFR §1910.1450(b)**

designates the Chief Executive Officer (CEO) of an organization as the Chemical Hygiene Officer (CHO). The Superintendent of the School district is the CHO of the School district until a designee is appointed. The Principal of a school is the CHO of the school until a designee is appointed.

### **29 CFR §1910.1450(b) Regulation Defining CHO and Duties (Mandatory)**

**Chemical Hygiene Officer** means “an employee who is designated by the employer—and who is qualified by training or experience—to provide technical guidance in the development and implementation of the provision of the Chemical Hygiene Plan. This definition is not intended to place limitations on the position description or job classification that the designated individual shall hold within the employer’s organizational structure.” School system administrators must acknowledge that the CHO is responsible for the safety of students and staff alike. To be an effective CHO, the school administrators must provide the CHO needed time, support and sufficient resources to do a thorough job.

The Superintendent is the Chief Executive Officer (CEO) of the School district and the Principal is the CEO of the school. The Superintendent of the School district is the CHO of the School district until a designee is appointed. The Principal of a school is the CHO of the school until a designee is appointed. The CHO designees must be knowledgeable of and qualified in the duties of a CHO rather than being “Volentold.”

### **29 CFR §1910.1450(e)(3)(vii)**

Designation of personnel responsible for implementation of the Chemical Hygiene Plan including the assignment of a Chemical Hygiene Officer and, if appropriate, establishment of a Chemical Hygiene Committee.

## **Hazard Communication Standard (Right-to-Know)**

### **29 CFR §1910.1200 (1983) -**

This standard applies to art, vocational education and all other areas of the school. Protection under OSHA's Hazard Communication Standard (HCS) includes all workers exposed to hazardous chemicals in all industrial sectors. Schools are classified by OSHA as an industry. This standard is based on a simple concept - that employees have both a need and a right to know the hazards and the identities of the chemicals they are exposed to when working. They also need to know what protective measures are available to prevent adverse effects from occurring. Hazards of chemicals must be conveyed on container labels and material safety data sheets (MSDSs). It also provides necessary hazard information to employees so they can participate in and support the protective measures in place at their workplaces. All chemicals have associated hazards such as toxicity. Toxicity is determined by the dosage. Even water can be toxic as in the recent case of a California woman drinking more water in a given period than her body could assimilate. While hazards cannot be removed, risks can be minimized.

CHP and HazCom Plans can be merged. There is about 80 % overlap between a CHP and HazCom Plan.

### **Employers who use toxic or hazardous substances must provide employees with:**

- Chemical inventory, complete and updated at least annually
- Material Safety Data Sheets (MSDSs) which describe properties, safe handling and health hazards of materials for each chemical in the chemical inventory

- Labeling of all toxic substances with product name and hazard warning on every container and labeling of pipes (e.g., water, gas)
- Annual professional development on hazards of toxic substances, safe handling procedures and how to read MSDSs for all employees who work with hazardous chemicals.
- Written copy of HazCom program.

## Professional / Industry Standards

In analyzing the duty of care owed by a teacher, school, etc. to take reasonable precautions to ensure the safety of employees and students, courts often look at industry standards to provide evidence of the standard of care in the specific industry. While these standards are not necessarily a definitive statement as to what the standard of care is for a particular industry—as the court must make the legal determination as to what the standard in the industry actually is for a particular set of facts—often the industry standard is the best evidence of what the standard of care should be in a particular situation. When industry groups reach consensus on a particular issue, such as the ANSI standard for eye wear, the court has a much easier task in reaching a decision, than when there is conflict in a standard.<sup>3</sup>

## Summary

It is not an option for school systems or schools to obey federal, state and local laws, codes, regulations and standards which regulate school employees and science laboratories. Employers must provide science safety professional development for school personnel. The Laboratory Standard establishes needed science safety and emergency equipment for laboratories and requires a CHP. This standard is unique in also requiring a “qualified” CHO. School superintendents and principals cannot pass their legal responsibility of being the CHO to another individual who is not qualified. The CHO must be given training and / or education, authority, financial support and time to implement an effective school laboratory safety program. For a more thorough discussion on Legal Issues, see the chapter on Legal Issues in Laboratory Safety in the Science Laboratory Safety Manual.

<sup>1</sup> Stroud, Linda M., Science Laboratory Safety Manual, Second Edition, 2008.

<sup>2</sup> [www.osha.gov/oshstats/index.html](http://www.osha.gov/oshstats/index.html) “Search Inspections by SIC

<sup>3</sup> Kelly Ryan, Esq., author, *Science Classroom Safety and the Law*. Kelly Ryan Associates, Pasadena, CA.

[Current Issue](#) | [Archives](#) | [NCSTA](#)

---

**The Science Reflector**  
Newsletter of the North Carolina Science Teachers Association  
P.O. Box 33478, Raleigh, NC 27636  
[Elizabeth Snoke Harris](#), Editor