



# Safer Science

February 2013, Best Practices for Safety Issues in the Science Classroom and Laboratory

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## Pay Attention to Lab Occupancy Load

The Occupational Safety and Health Administration (OSHA) mandates that schools maintain safer laboratories by providing proper engineering controls (e.g., ventilation), standard operating procedures (e.g., chemical hygiene plan), and appropriate protective equipment (e.g., goggles). Often overlooked, however, is the laboratory occupancy load—the number of people allowed in the laboratory. Unfortunately, if an accident occurs in an overcrowded laboratory, the teacher could share liability with school authorities.

### Strategies

To address occupancy load issues, start with these resources:

**OSHA legal standards:** Under the Occupational Safety and Health Act of 1970, “employers must provide a workplace free from serious recognized hazards and comply with standards, rules and regulations issued under the OSHA Act” (see “On the web”). If science teachers believe they are working in an unsafe environment resulting from overcrowded conditions or other known laboratory hazards, they should attempt in earnest to work with the school’s administration to address the problems. If that action is unsuccessful, science teachers might consider contacting OSHA for help.

**Fire codes:** Laboratories have occupancy load limits under the National Fire Protection Association (NFPA) Life Safety Codes (see “On the web”). The load codes prescribe the number of occupants allowed that can safely exit (get out alive from) the lab. The local fire marshal has jurisdiction over most school districts in these matters. The science laboratory must be analyzed to determine maximum occupancy load, determined by the size of the lab, number of exits, hazards, and other factors.

**Building codes:** The International Code Council or regional code associations also set occupancy loads for academic science labs. Teachers need to check with local building officials for original building blueprints to determine the loads that science labs were designed to accommodate.

**Professional standards/best practices:** Check out NSTA’s position papers on safety (see “On the web”), which include “Liability of Science Educators for Laboratory Safety” and “Safety and School Science Instruction.”

**Duty of Care:** Legally, the science teacher has a “Duty or Standard of Care,” which

means the teacher must secure a safer instructional environment for students and other employees. Conducting certain types of experiments in an overcrowded lab opens science teachers and school administrators to potential liability issues. Until the occupancy load issue is addressed, the teacher must consider cutting back or eliminating any activity that could be unsafe. Knowing the safety rules (including occupancy load) and disregarding them could be construed as reckless or willful misconduct, which means that the state or town may not be required to pay for the defense of the teacher or the resulting damages.

**Teacher as safety expert:** One interesting change in the courts is who determines if a lab is unsafe. It used to be administrators. Today the courts seem to be charging the science teachers with that decision, based on their expertise and experiences working in the laboratory environment.

**School insurer:** The school’s insurance carrier has clear safety standards for working in school science labs. They can be effective in dealing with this issue. The carrier can be contacted to request a science lab safety inspection.

### Bottom line

Work with administrators to meet the proper occupancy load for the safety of students and teachers alike.

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### On the web

International Code Council: [www.iccsafe.org/](http://www.iccsafe.org/)

OSHA Employer Responsibilities: [www.osha.gov/as/opa/worker/employer-responsibility.html](http://www.osha.gov/as/opa/worker/employer-responsibility.html)

NFPA Life Safety codes: <http://bit.ly/UDC3fM>

NSTA Position Papers: [www.nsta.org/about/positions.aspx](http://www.nsta.org/about/positions.aspx)

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