

# NFPA 45 Standard on Fire Protection for Laboratories Using Chemicals

## 2015 Update

### Summary of New Standard:

- This standard applies to purpose or intended use of the laboratory; for twelfth grade and under or beyond the twelfth grade. The location of the laboratory is not a factor.
- Educational Laboratory units shall be limited to 50% of the flammables and combustible liquids permitted in an Instructional Laboratory. (NFPA 4.2.2.2)
- Chemical storage and handling - for Educational Laboratory
  1. Bulk (2L or larger) stored in locked room outside of classroom
  2. Chemicals used in Educational Laboratory limited to amount for one day's use, reappportioned to the amount needed for each laboratory class session, may be stored in laboratory.
  3. Chemicals used in Instructional Laboratory shall be limited to lowest possible level necessary not to exceed maximum quantity in fire code.
  4. Dispensing of chemicals shall not occur in the laboratory, may be done in a prep-room, outside the laboratory if have bonding and grounding. If there is no prep-room the chemicals may be dispensed in the laboratory if bonding and grounding are used and this process is completed prior to the start of class. (NFPA 45 12.3)
  5. Bottles shall only be opened in the classroom when experiment or demo is being performed.
- Chemical Storage and Handling for Instructional Lab
  1. 5 gallon is the set limit per container in an effort to limit the largest spill of a single container to 5 gallons. This limit of 5 gallons includes hazardous waste containers within the laboratory.

NFPA 45 "Standard on Fire Protection for Laboratories Using Chemicals" applies to laboratory buildings, laboratory units and laboratory work areas located above and below grade in which the chemicals have at least one of the following hazards health, flammable, or reactivity.

A new section on Educational and Instructional Laboratories was added, which applies to all educational and instructional laboratories, independent of the quantity of chemicals present. These changes were made in response to recent incidents involving injuries to students and faculty for the purpose of protecting people during experiments and demonstrations involving hazardous materials.

### Key Definitions:

#### Educational Laboratory Unit

A laboratory unit that is under direct supervision of an instructor and used for education purpose for students through the twelfth grade. (NFPA 45 3.3.13)

#### Instructional Laboratory Unit

A laboratory unit that is under direct supervision of an instructor and used for instructional purpose for students beyond the twelfth grade. (NFPA 45 3.3.31)

#### Instructor

A person whose job includes teaching or instructing students in educational or instructional laboratories. This can include science teachers, professors, assistant professor, associate professor, lectures, substitute teachers and teaching assistance. (NFPA 45 3.3.32)

#### Laboratory

A facility where the containers used for reactions, transfers, and other handling of chemicals are designed to be easily and safely manipulated by one person. A laboratory is a workplace where chemicals are used or synthesized on a nonproduction basis. (NFPA 45 3.3.33)