

Laboratory Safety Code Requirements and Discussion

INTRODUCTION

The following summarizes FLS' review of the applicable code sections, existing conditions, and corrective actions that need to be taken to improve laboratory occupant safety. Please note that this document was prepared to list some but not all of the requirements based on the latest editions of adopted codes in 2011. The items listed in the attached checklist are typical violations of the code sections listed below. The responsible persons and the building proctor are urged to ensure that these items are enforced at all times. Please note that the items listed below are limited to housekeeping, fire safety, fire prevention issues and measures that are to be implemented to alleviate the conditions.

PRECAUTIONARY ACTIONS

Please see the printable [Laboratory Fire Safety Checklist](#) to evaluate the existing laboratory conditions and identify what corrective actions are to be taken to improve occupant safety.

CODE REQUIREMENTS

Section 7.2.1.8 of the 2009 edition of Life Safety Code (NFPA-101) states that a door normally required to be kept closed is not to be secured in the open position at any time and such doors are to be self-closing or automatic closing.

Section 7.2.3.3 of the 2004 edition of the Standard on Fire Protection for Laboratories Using Chemicals (NFPA-45) states that chemical inventories are to be maintained within the prescribed capabilities of the storage facility.

Section 7.2.3.4 of NFPA-45 states that incompatible materials are to be segregated to prevent accidental contact with one another.

Section 7.2.3.5 of NFPA-45 states that containers of materials that might become hazardous during prolonged storage are to be dated when first opened. At the end of 6 months, the materials are to be evaluated or tested for continued safe use. Material that is found to be safe or that can be treated to be made safe is permitted to be re-dated and retained for an additional 6-month period. All other material is to be safely discarded.

Section 4.6.1 of NFPA-45 states that fire prevention procedures are to be established. Certain critical activities are to require special consideration, including, but not limited to, the following:

- Handling and storage of chemicals, flammable and combustible liquids, and gases.
- Use of open flame and spark-producing equipment (hot work permit system)
- Arrangement and use of portable electric cords
- Smoking area controls (i.e. outdoor near air ducts)

Section 4.6.3.1 of NFPA-45 states that plans for laboratory emergencies are to be developed. Such plans are to

include the following:

- Alarm activation
- Evacuation and building re-entry procedures
- Equipment shutdown procedures or applicable emergency operation
- Fire-fighting operations
- Non-fire hazards

Section 8.6.6.1 of the 2007 Standard for the Installation of Fire Sprinklers (NFPA-13) states that the clearance between the deflector and the top of storage is to be 18 inches or greater.

Section 1003.6 of the 2009 International Building Code (IBC) states the path of egress travel along a means of egress is not to be interrupted by any building element other than a means of egress component. Obstructions are not to be placed in the required width of a means of egress. The required capacity of a means of egress system is not to be diminished along the path of egress travel.

Section 1030.3 of the 2009 edition of the International Fire Code (IFC) states that the means of egress is to be free from obstructions that would prevent its use.

Section 14.4.1 of the 2009 edition of the Uniform Fire Code (NFPA-1) states that means of egress are to be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or other emergency.

Section 1017.2 of the IBC states that the minimum corridor width is to be as determined in Section 1005.1, but such width is not to be less than 44 inches for corridors serving an occupant load of more than 50 people and not to be less than 36 inches in width for corridors serving an occupant load of 50 or less.

Exception: Nonpublic aisles serving less than 50 people need not exceed 28 inches in width.

Section 315.2.2 of the IFC states that combustible material is not to be stored in exit stairs or exit enclosures.

Section 605.3 of the IFC states that a working space of not less than 30 inches in width, 36 inches in depth and 78 inches in height is to be provided in front of electrical service equipment. Where the electrical service equipment is wider than 30 inches, the working space is not to be less than the width of the equipment. No storage of any material is to be located within the designated working space.

Section 703.2 of the IFC states that fire doors and smoke barriers are not to be blocked or obstructed or otherwise made inoperable .

Section 1022.1 of the IFC states that exit enclosures, including stairwells, are not to be used for any purpose other than as means of egress.