



## **Boston Fire Department Lab Inspection Key Points**

The Boston Fire Department Lab Inspector has noted a number of findings during annual walk-throughs of lab buildings in the past, as noted in the list below. At the top of the list is ensuring clear paths of travel from the bench to the corridor to the exit stairwell to the building's point of discharge. Maintaining the ease of escape and an uncompromised sprinkler system cannot be overstated.

- **Egress Paths.** Aisles, corridors, doorways, and stairwells must be unobstructed and ready for use at all times. As a rule, please do not leave broken or obsolete lab equipment in corridors for later removal. Do not place furniture, equipment, bicycles, or supplies on stairwell landings.
- **Blocked Doors.** If a door is obstructed on one or both sides by occupants, the BFD will expect: (1) the removal of all obstructions or (2) door replacement, where allowed, with a properly fire-rated wall.
- **Emergency Equipment.** Maintain clear access to all emergency equipment at all times. This includes fire alarm boxes ("pull stations"), drench hoses, eyewash stations, deluge or safety showers, and fire extinguishers. Fire extinguishers are to be wall-mounted on hooks or in cabinets designed for this purpose. Do not use fire extinguishers as door stops. Deliverers are not to park pallets burdened with supplies or equipment under safety showers or in front of alarm boxes.
- **Sprinkler Pipe.** Do not hang anything from or lean anything against or rest anything upon sprinkler pipe.
- **Vertical Storage and Sprinkler Heads - The 18" Rule.** Avoid storage within 18 vertical inches of sprinkler heads. Sprinkler water from neighboring work bays must overlap in the event of an incipient fire at the bench. Floor-to-ceiling storage along the periphery of a room is permitted.
- **Propped Doors.** Doors may not be wedged or blocked open intentionally. In the event of fire, propped doors make a floor vulnerable to the spread of smoke and flame.
- **Suspended Ceilings.** Missing or skewed ceiling tiles are to be replaced or realigned, respectively, through your building maintenance group. Leaving the ceiling open for days on end cannot be excused. In the event of fire, a sealed suspended ceiling inhibits the spread of smoke and flame to other parts of a floor or building.
- **Storage of Flammable Liquids.** Idle flammable liquids or solvents must be stored in a flammable storage cabinet or fire-rated safety can. (In the past the inspector has made exceptions for small "working quantities," such as squeeze or spray bottles at benches. He does not like to see squeeze or spray bottles hanging by the stem or trigger, respectively.) As a rule, flammable materials may not be stored in cold rooms, warm rooms, or standard household refrigerators; rather, when necessary, store them in specially-rated\* flammable storage or explosion-safe refrigerators. Flammable storage cabinets must remain closed at all times to be effective.

\* *Approved through Factory Mutual (FM) or Underwriters Laboratories (UL) or equivalent.*

• **Chemical Compatibility.** Review overall chemical storage compatibility (flammables, oxidizers, acids, bases, more) and refer to the Chemical Hygiene Plan, pages 23 and 24, if there are questions: <https://www.ehs.harvard.edu/node/7681>. For more guidance, see:

- EHS's Lab Chemical Storage Guide  
<https://www.ehs.harvard.edu/node/7968>
- EHS's Chemical Waste Storage Compatibility Guide  
<https://www.ehs.harvard.edu/node/7268>
- EPA's RCRA Chemical Waste Compatibility List  
<https://www.ehs.harvard.edu/node/7273>
- EPA's Chemical Compatibility Chart  
<https://www.ehs.harvard.edu/node/7272>

Lab members should be familiar with the Chemical Hygiene Plan and safety SOPs associated with their work. See the CHP's part III, above, for more information.

• **Carboys with Plastic Spigots.** The BFD is concerned about flammable liquids kept in plastic carboys with (blue) plastic spigots. The spigot may degrade or shrink with time. If a spigot leaks, replace it promptly. A robust equivalent, made of brass, is BFD-recommended, but not required.

• **Storage Under Sinks.** Limit it to cleansers, detergents, disinfectants, equipment, and disposable supplies. Please, no reagent storage.

• **Utility and Other Corridor Closets.** Utility closets are not intended for storage. Holes in walls, floors, and ceilings of closets are to be sealed with fire-retardant compound available through your building maintenance group.

• **Compressed Gas Cylinders.** Harness them at all times and cap valves when cylinders are not in use. A cylinder containing flammable gas should be kept well apart -- by distance or shielding -- from a cylinder containing oxygen or an oxidizing gas. Manufacturers' and distributors' labels must be legible.

• **Labeling In-use Chemicals.** Label all secondary or transfer beakers, flasks, and bottles. Include characteristics, using words like flammable, combustible, oxidizer, water-reactive, peroxide-former, (highly acutely) toxic, sensitizer, irritant, pyrophoric, and so on. For example, label alcohol squeeze bottles, "Ethanol 70%, Flammable." Label dilute bleach, "Bleach 10%, Corrosive." Label aspirating flasks and other flasks or the containers in which they rest. Labels must be legible. Spell out the names of buffer solutions on carboys. Replace the abbreviation "DD" with the words distilled deionized water. Qualify the word "waste" on a bottle, beaker, or flask.

• **Label consumables and kitchen- and toiletry-related supplies and equipment devoted to the lab with the words, "For Lab Use Only."** Examples include household blenders, coffee grinders, coffee urns, tea kettles, ice-makers, one-handed mixers, powdered milk (from the grocery store), boxed grains or sugar, nested paper coffee filters, bags of cotton balls, boxes of cotton swabs, apple juice or apple cider vinegar, corn oil, more. EHS's decal or equivalent may be used for a microwave oven, an ice-maker, a refrigerator, or a freezer.

• **Door Placards Reflecting Laboratory Hazards.** Post door placards that reflect lab inventories that are current (updated no more than 12 months ago). Color-print updated door

placards through LabPoint, the Harvard laboratory hazard database, <https://www.ehs.harvard.edu/programs/lab-inventory-management-door-placarding>.

- **Cryogenic vs. Hot-work Gloves.** Separate hot gloves from cold gloves, so no one questions their intended purpose. Try to maintain matching pairs, where needed. Retire and replace tattered or holey gloves and gauntlets.

- **Glass Alcohol Lamps.** They are forbidden in Boston labs. An aluminum, low-profile equivalent is permitted and available through scientific instrument distributors.

- **Electrical Extension Cords.** Unlike power strips, extension cords may not be used as permanent sources of electricity. Replace extension cords with electrical raceways and outlets, where needed.