

FDN(wh)Y Me?

As an aid to laboratories in avoiding FDNY Violation Orders (VO) and Summonses (SUM), EH&S distributes monthly FDNY inspection findings which resulted in a VO or SUM citation to an actual laboratory on either the Morningside or Medical Center campus. These real-life scenarios are meant to assist the research community in ensuring that such conditions do not exist in Columbia University laboratories.

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Maximum Allowable Quantities

Every individual laboratory is unique in design. Columbia Laboratories are equipped with different fire protection features, including sprinkler systems and, most notably, the fire rating of the walls and laboratory room enclosure. The laboratory's fire rating is the time period (expressed in hours) in which the walls/enclosure can withstand and restrict fires, as determined by a standard fire resistance test. Directly related to the fire rating is the regulatory concept of Maximum Allowable Quantities (MAQ).

Maximum Allowable Quantities generally refers to the limit of flammable liquid chemicals (in gallons) allowed to be stored or used within the laboratory per the FDNY's jurisdiction based partly on the room's fire rating. Keeping the volume of flammable liquids below the MAQ is crucial for the safety of laboratory occupants and the surrounding community; the FDNY enforces it to limit injury and property loss in the case of a fire. Keeping your flammable liquids quantities below the MAQ will help avoid FDNY Violation Orders, which can lead to FDNY Summonses.

Laboratories fall under either the Old FDNY Code (commissioned pre-2008) or New Code FDNY regulations (commissioned post-2008), which then determines the MAQ. Old FDNY Code laboratories are classified by type (I, II, III, and IV), and New FDNY Code ones by Hazard Class (Class B Class D). Your laboratory MAQ information can be found on the FDNY Permits posted on the front door of the laboratory entrance.

Below are the Maximum Allowable Quantities for both Old Code and New Code laboratories:

Lab Type	Fire Rating (hr)	Fire Protection	Flammable liquids	Combustible liquids
I	2	Sprinklered	30 Gallons	Not applicable
II	1	Sprinklered	25 Gallons	Not applicable
III	2	Nonsprinklered	20 Gallons	Not applicable
IV	1	Nonsprinklered	15 Gallons	Not applicable

Laboratory unit hazard classification	Excluding Quantities in Storage Cabinets or Safety Cans		Including Quantities in Storage Cabinets or Safety Cans	
	Maximum Quantity Class I Liquids Alone per Lab Unit (gal)	Maximum Quantity Class I, II, IIIA Liquids per Lab Unit (gal)	Maximum Quantity Class I Liquids Alone per Lab Unit (gal)	Maximum Quantity Class I, II, IIIA Liquids per Lab Unit (gal)
Class B	5 gals/100 ft ² 25 (max)	10 gals/100 ft ² 25 (max)	10 gals/100 ft ² 25 (max) ^b	20 gals/100 ft ² 25 (max) ^b
Class D	1 gals/100 ft ² 75 (max) ^c	1 gals/100 ft ² 75 (max) ^c	2 gals/100 ft ² 150 (max) ^d	2 gals/100 ft ² 150 (max) ^d

The FDNY inspects laboratories annually and issues formal violations for non-compliance, as mentioned before. There are many compliance aspects they look for, and one of the major ones is ensuring the total volume of flammable liquid storage in the room does not exceed its MAQ. One important note is that inspectors consider chemical containers with any liquid in them as being at full capacity. For example, if one gallon of ethanol is present inside a five-gallon-sized container, the total quantity is considered five gallons.

Laboratory occupants are responsible for keeping flammable liquids under these MAQ. It is essential to monitor the amount of flammable liquid chemicals brought to the lab and remove any unused or unwanted chemicals. If your laboratory accumulates any excess unwanted flammable chemicals, EH&S provides [Hazardous/Chemical Waste Disposal](#) service for the research laboratories. For assistance determining if a particular chemical qualifies as flammable, please contact EH&S at labsafety@columbia.edu to help make this determination.

Please note, the FDNY Laboratory Inspection Unit is on-site weekly at the Morningside and Irving Medical Center campuses. For a consultation before the FDNY inspector gets around to your lab, or for any question, concern, or help, please contact an EH&S Safety Advisor. <https://research.columbia.edu/safety-advisor-team>