

### Optional Information

Name of School:

Date of Inspection:

Vocational Program/Course/Room:

Signature of Inspector:

## **Flammable and Combustible Liquids Self-Inspection Checklist**

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### Guidelines:

This checklist covers regulations issued by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) under the General Industry Standards in 29 CFR and the Construction Standards in 29 CFR 1926.152. The checklist also covers regulations issued by the New Jersey Department of Education (N.J.A.C. 6A:19-10.5) and regulations issued by the New Jersey Department of Community Affairs (NJDCA) under the Uniform Fire Code (5:70-3.2). The Uniform Fire Code has adopted by reference the model code of the Building Officials and Code Administrators International, Inc. known as the "BOCA National Fire Prevention Code" as well as the National Fire Protection Association (NFPA) standard NFPA 30.

The checklist applies to the storage and use of flammable or combustible liquids in drums or other containers not exceeding 60 gallons individual capacity in educational buildings. When OSHA and NJDCA regulations are in conflict, the more stringent regulations take precedence. The questions in the checklists reflect the more stringent regulations.

Storage of Class I or Class II liquids in fuel tanks of a motor vehicle, aircraft, boat, or portable or stationary engine and storage of flammable or combustible paints, oils, varnishes, and similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days are not covered by the OSHA regulations [see 29 CFR 1910.106(d)(1)(ii)].

Definitions of terms are provided at the end of the checklist to help you understand some of the questions. Questions marked with the symbol (☺) may require the help of an outside expert. Any question marked with the symbol (☹) indicates a history of previous violations in vocational schools.

This checklist does not cover regulations dealing with flammable and combustible liquids in above ground storage tanks, underground storage tanks, and service stations dispensing fuel. Please consult the OSHA and the NJDCA regulations for details.

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Dispensing and Use

Please Circle

1. Unless the original container is designed to be used, are flammable or combustible liquids transferred to an approved safety can prior to use? [N.J.A.C. 6A:19-10.5(b)] Y N N/A DK
  
2. Are only approved pumps, drawing from the top of the storage containers used to transfer flammable liquids? [29 CFR 1910.106(e)(2)(iv)(d); 29 CFR 1926.152(e)(3 & 5); and N.J.A.C. 5:70-3.2{BOCA F-3203.5.1}] Y N N/A DK
  
- Note: Dispensing of flammable liquids from storage containers by gravity is prohibited by N.J.A.C. 5:70-3.2{BOCA F-3203.5.1}.
  
3. If gravity is used to dispense combustible liquids from storage containers, are only approved self-closing valves or faucets used which are affixed directly on the container or a rigid closed piping system? [29 CFR 1910.106(e)(2)(iv)(d); 29 CFR 1926.152(e)(5); and N.J.A.C. 5:70-3.2{BOCA F- 3203.5.1}] Y N N/A DK
  
4. Is air or gas pressure prohibited for transfer of flammable or combustible liquids from a non-pressure vessel? [29 CFR 1910.106(e)(2)(iv)(d); N.J.A.C. 5:70-3.2{BOCA F-3203.5.3}] Y N N/A DK
  
5. Are containers and portable tanks used for flammable liquids electrically connected or grounded during transfers? [29 CFR 1926.152(e)(2) and N.J.A.C. 5:70-3.2{BOCA F-3209.5}] Y N N/A DK
  
6. Is the use of Class I liquids for washing parts or removing grease or dirt prohibited unless it is done in an approved closed machine in a separately ventilated room? [N.J.A.C. 5:70-3.2{BOCA F-3203.7}] Y N N/A DK
  
7. Is use of any flame or source of ignition prohibited in areas where flammable vapors may be present? [N.J.A.C. 5:70-3.2{BOCA F-3203.8} and NFPA 30] Y N N/A DK

Note: 29 CFR 1926.152(f)(3) requires a distance of at least 50 feet between any source of ignition and flammable liquids.

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- 8.⊗ Are leakages or spillages of flammable or combustible liquids cleaned up and disposed of promptly and safely? [29 CFR 1910.106(e)(2)(ii)(b); 29 CFR 1910.106(e)(9)(i); 29 CFR 1926.152(f)(2) and NFPA 30] Y N N/A DK
9. Is the discharge of flammable or combustible liquids of any kind prohibited into or upon any street, pavement, highway, drainage canal ditch, storm or sanitary drain or flood control channel, lake or waterway, or upon the ground? [N.J.A.C. 5:70-3.2 {BOCA F-3203.6}] Y N N/A DK
10. Are flammable and combustible liquid spills and leaks promptly reported to the local fire official? [N.J.A.C. 5:70- 3.2 {BOCA F-3203.9}] Y N N/A DK
11. Are portable fire extinguishers available at locations where flammable or combustible liquids are stored? [29 CFR 1910.106(d)(7); 29 CFR 1926.152(d)(1) and N.J.A.C. 5:70- 3.2 {BOCA F-3209.1 and F-3209.2}] Y N N/A DK

Note: Under BOCA requirements, at least one portable fire extinguisher having a rating of not less than 20-B:C units shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage. At least one portable fire extinguisher having a rating of not less than 20-B:C units must be located not less than 10 feet, nor more than 25 feet from any Class I or Class II liquid storage area located outside of a storage room but inside a building.

Using OSHA construction requirements, at least one portable fire extinguisher having a rating of not less than 20-B units shall be located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.

#### Storage and Use Quantities

12. Is storage of flammable and combustible liquids limited to that required for operation of office equipment, maintenance, demonstration, treatment, and laboratory work? [NFPA 30] Y N N/A DK

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13. ☹ Is storage of flammable or combustible liquids prohibited in office areas except that which is required for maintenance and operation of building and operation of equipment? [29 CFR 1910.106(d)(5)(iii)]  
 Note: Such storage shall be kept in closed metal containers stored in a storage cabinet or in safety cans or in an inside storage room not having a door that opens into that portion of the building used by the public. Y N N/A DK
14. Is storage of flammable and combustible liquids limited to that required for current activities? [NFPA 30] Y N N/A DK
15. Are flammable and combustible liquids stored in their original container or in an approved safety can? [N.J.A.C. 6A:19-10.5(a)] Y N N/A DK
16. Are flammable and combustible liquids stored only in closed containers when not actually used? [29 CFR 1910.106(e)(2)(ii) and 29 CFR 1926.152(f)(1)] Y N N/A DK
17. At points of use, outside of approved cabinets or storage rooms, are containers of flammable liquids limited to a capacity of one gallon, or two gallons, if safety cans are used? [NFPA 30] Y N N/A DK
18. Are not more than a total of 10 gallons of Class I and Class II liquids stored in single area outside of an approved storage cabinet or interior storage room (except in safety cans)? [NFPA 30] Y N N/A DK
19. Are not more than a total of 25 gallons of Class I and Class II liquids stored outside of an approved storage cabinet or interior storage room? [NFPA 30 {4.5.5.4}] Y N N/A DK

Note: The OSHA general industry regulations under 29 CFR 1910.106(e)(2)(ii)(b) and NFPA 30 {5.5.4.1} for non-educational settings permit up to 25 gallons of Class IA liquids in containers and up to 120 gallons of Class IB, IC, II or III liquids in containers. OSHA construction regulations under 29 CFR 1926.152(b)(1) permit up to 25 gallons of flammable and combustible liquids stored outside of an approved storage cabinet or interior storage room.

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20. Are not more than 60 gallons of Class IIIA liquids stored outside of an approved storage cabinet or interior storage room? [NFPA 30 {4.5.5.4}] Y N N/A DK

Note: The OSHA general industry regulations under 29 CFR 1910.106(e)(2)(ii)(b) and NFPA 30 {5.5.4.1} for non-educational settings permit up to 120 gallons of Class IB, Class IC, II, or III liquids stored outside of an approved storage cabinet or interior storage room?

21. If Class II and/or Class III liquids that are stored, handled, processed, or used at temperatures at or above their flash points, are applicable requirements in the code for Class I liquids followed, unless other instructions from an engineering evaluation are provided? [NFPA 30] Y N N/A DK

22. Is storage of flammable or combustible liquids prohibited near exits, stairways, or areas normally used for the safe exit of people? [29 CFR 1910.106(d)(5)(i) and NFPA 30 {4.5.1.2}] Y N N/A DK

23. Are open flames, smoking, and any ignition source such as heaters prohibited where flammable or combustible liquids are used or stored? [29 CFR 1910.106(d)(7)(iii) and N.J.A.C. 5:70-3.2{BOCA F-3209.3}] Y N N/A DK

Note: 29 CFR 1926.152(f)(3) requires a distance of at least 50 feet between an ignition source and flammable liquids.

- 24.☹ Are storage areas for flammable or combustible liquids kept free from combustible materials? [29 CFR 1910.106(d)(iv)] Y N N/A DK

- 25.☹ Are combustible waste materials and residues kept to a minimum and stored in covered metal receptacles and disposed of daily? [29 CFR 1910.106(e)(9)(iii) and N.J.A.C. 6A:19-10.5(c)] Y N N/A DK

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26. Are Class I liquids prohibited from storage in basements? [NFPA 30 {4.5.1.4 and 4.4.3.5}] Y N N/A DK
27. Are Class II and Class IIIA liquids only permitted to be stored in basements when there is an automatic sprinkler protection system? [NFPA 30 {4.4.3.5}] Y N N/A DK
28. When a process heats a liquid to a temperature at or above its flashpoint, are the following guidelines implemented when applicable [NFPA 30 (17.3.7)]?
- a) The process vessel should be closed to the room in which it is located and vented to the outside of the building. The process vessel should be equipped with an excess temperature control set to limit excessive heating of the liquid and the subsequent release of vapors. Y N N/A DK
- b) If the vessel needs to be opened to add ingredients, the room ventilation must meet the requirements of Section 17.11 and the process heating controls will be interlocked with the ventilation such that the process heat will shut down if the ventilation fails or is turned off. Y N N/A DK
- c) If a heat transfer medium is used to heat the liquid and the heat transfer fluid can heat the liquid to its boiling point on failure of the process and excess temperature heat controls, a redundant excess temperature control shall be provided. Y N N/A DK

#### Design and Capacity of Containers

- 29.⊕ Are only original or approved containers used for storing flammable or combustible liquids? [N.J.A.C. 5:70-3.2{BOCA F-3203.2} and 29 CFR 1910.106(d)(2)(i)] Y N N/A DK
- Note: All gasoline must be stored in approved containers.
30. Are portable containers intended for gasoline or other flammable liquids metal or approved plastic with a spring-loaded or screw cap? [N.J.A.C. 5:70-3.2{F-3203.2.2}] Y N N/A DK

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31. Are flammable and combustible liquid containers stored in accordance with the requirements of Table 1? [29 CFR 1910.106(d)(2)(iii) and NFPA 30 {4.2.3}] Y N N/A DK

TABLE 1 - MAXIMUM ALLOWABLE SIZE OF CONTAINERS AND PORTABLE					
Container Type	Flammable liquids			Combustible liquids	
	Class IA	Class IB	Class IC	Class II	Class III
Glass or approved plastic	1 pt	1 qt	1.3 gal	1.3 gal	5.3 gal
Metal (other than drums or approved)	1.3 gal	5.3 gal	5.3 gal	5.3 gal	5.3 gal
Safety cans	2.6 gal	5.3 gal	5.3 gal	5.3 gal	5.3 gal
Metal drums (e.g., UN 1A1/1A2)	119 gal	119 gal	119 gal	119 gal	119 gal
Approved portable tanks and IBCs	793 gal	793 gal	793 gal	793 gal	793 gal

NOTE: Container exemptions: Medicines, beverages, foodstuffs, cosmetics, and other common consumer items, when packaged according to commonly accepted practices. NFPA requirements are less restrictive than OSHA requirements. The OSHA requirements are listed on this table.

\* (1 pt = 0.5L, 1.3 gal = 5L, 2.6 gal = 10L, 5.3 gal = 20L, 119 gal = 450L, 793 gal = 3000L)

32. Are portable containers intended to hold 10 gallons or less and to be used for gasoline or other flammable liquid red in color and is the name of the flammable liquid prominently displayed on the container in bold letters of contrasting color? [N.J.A.C. 5:70-3.2 {F-3203.2.2}] Y N N/A DK
33. Are containers for kerosene blue? [N.J.A.C.5:70-3.2 {F-3203.2.2}] Y N N/A DK  
 Design, Construction and Capacity of Storage Cabinets
34. Is storage in cabinets restricted to not more than 60 gallons of Class I or Class II liquids and not more than 120 gallons of Class III liquids? [29 CFR 1910.106(d)(3)(i) and 29 CFR 1926.152(b)(3)] Y N N/A DK
35. ☉ Are all cabinets labeled in conspicuous lettering: "FLAMMABLE - KEEP FIRE AWAY"? [29 CFR 1910.106(d)(3)(ii) and 29 CFR 1926.152(b)(2)(iii)] Y N N/A DK

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*If yes, please answer the following question as well:*

Is the letter height for FLAMMABLE at a minimum 2.0 in. (50 mm) and the letter height for KEEP FIRE AWAY at a minimum 1.0 in. (25 mm)? [NFPA 30 9.5.5.1]

Y N N/A DK

Note: These letters should be uppercase and in contrasting color to the background and the marking should be located on the upper portion of the cabinet's front door(s) or frame. The use of other languages, the international symbol for "flammable" and the international symbol for "keep fire away" will be permitted. [NFPA 30]

36. Are metal cabinets constructed so that the top, sides and door are at least #18 gauge sheet iron and double spaced wall with 1-1/2 inch air space? [29 CFR 1910.106(d)(3)(ii)(a)]

Y N N/A DK

37. Is the door provided with a three point lock and a sill raised at least 2 inches above the bottom of the cabinet? [29 CFR 1910.106(d)(3)(ii)(a)]

Y N N/A DK

38. Are wooden cabinets constructed so that the bottom, sides and top are of approved grade plywood at least 1 inch thick? [29 CFR 1910.106(d)(3)(ii)(b) and 29 CFR 1926.152(b)(2)(i)]

Y N N/A DK

Note: Although wooden storage cabinets are allowed by regulation, they are not recommended for use due to the likelihood of spills which will become absorbed in the wood. Such oil saturated wood can then be easily ignited. A two inch deep metal pan covering the bottom of the cabinet and a corresponding pan on top should be used to retain spills. Such pans should also be used on all shelves.

39. Are all wooden cabinet joints rabbetted and fastened in two directions with flat head wood screws? [29 CFR 1910.106(d)(3)(ii)(b) and 29 CFR 1926.152(b)(2)(i)]

Y N N/A DK

40. When more than one door is used on wooden cabinets, is there a rabbetted overlap of not less than 1 inch? [29 CFR 1910.106(d)(3)(ii)(b) and 29 CFR 1926.152(b)(2)(i)]

Y N N/A DK

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41. Are no more than three (3) cabinets located in one fire area? Y N N/A DK
42. Are cabinet vents sealed unless vented to the outdoors? Y N N/A DK  
[NFPA 30 {4.3.4}]

**Design and Construction of Inside Storage Rooms**

43. Are openings to other rooms or buildings from flammable/combustible liquids storage rooms provided with a noncombustible liquid-tight raised sill or ramp at least 4 inches in height? [29 CFR 1910.106(d)(4)(i) and 29 CFR 1926.152(b)(4)(ii)] Y N N/A DK

Note: Alternatively, the floor of the storage area shall be at least 4 inches below the surrounding floor.

44. Are openings to storage rooms provided with approved self-closing fire doors? [29 CFR 1910.106(d)(4)(i) and 29 CFR 1926.152(b)(4)(ii)] Y N N/A DK
45. ☞ Does storage in inside rooms comply with the requirements of Table 2? [29 CFR 1910.106(d)(4)(ii) and 29 CFR 1926.152(b)(4)(iv)] Y N N/A DK

TABLE 2 - STORAGE IN INSIDE ROOMS			
Fire Protection Provided <sup>(1)</sup>	Fire Resistance	Maximum Size	Total Allowable Quantities <sup>(2)</sup>
Yes	2 hours	500 sq. ft.	10
No	2 hours	500 sq. ft.	5
Yes	1 hour	150 sq. ft.	4
No	1 hour	150 sq. ft.	2

<sup>1</sup>Fire protection system shall be sprinkler, water spray, carbon dioxide, or other system.  
<sup>2</sup>(gals/sq. ft/floor area)

46. Is the room liquid tight where the wall joins the floor? [29 CFR 1910.106(d)(4)(i) and 29 CFR 1926.152(b)(4)(ii)] Y N N/A DK

Note: A permissible although not recommended alternative to the sill or ramp is an open-grated trench inside the room which drains to a safe location.

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47. ☞ Is the electrical wiring and equipment located inside the storage room especially designed to prevent possible ignition of any released flammable vapors? [29 CFR 1910.106(d)(4)(iii) and 29 CFR 1926.152(b)(4)(v)] Y N N/A DK

Note: Normal household wiring including switches, plugs, or lighting fixtures; radios; and other normal electrical equipment are not permitted.

48. Is every inside storage room provided with either a gravity or mechanical exhaust ventilation system? [29 CFR 1910.106(d)(4)(iv) and 29 CFR 1926.152(b)(4)(vi)] Y N N/A DK

49. Does the ventilation system have an exhaust not more than 12 inches off the floor? [29 CFR 1926.152(b)(4)(vi)] Y N N/A DK

50. ☞ Does the ventilation system provide for a complete change of air within the room at least six times per hour? [29 CFR 1910.106(d)(4)(iv) and 29 CFR 1926.152(b)(4)(vi)] Y N N/A DK

51. If a mechanical exhaust system is used, is the switch located outside of the door? [29 CFR 1910.106(d)(4)(iv) and 29 CFR 1926.152(b)(4)(vi)] Y N N/A DK

52. Are the ventilation equipment and the lighting fixture operated by the same switch? [29 CFR 1910.106(d)(4)(iv) and 29 CFR 1926.152(b)(4)(vi)] Y N N/A DK

53. When gravity ventilation is provided, are the fresh air intake as well as the exhaust outlet from the room located on the exterior of the building in which the room is located? [29 CFR 1910.106(d)(4)(iv) and 29 CFR 1926.152(b)(4)(vi)] Y N N/A DK

Note: Mechanical (exhaust fan) ventilation is preferred.

54. Is there a 3 foot wide clearance in the aisle in every storage room? [29 CFR 1910.106(d)(4)(v)] Y N N/A DK

55. Is stacking of 30 gallon capacity containers prohibited? [29 CFR 1910.106(d)(4)(v)] Y N N/A DK

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56. Are both fresh, or new, cooking oil and waste, or used cooking oil, each classified as a Class IIIB combustible liquid and stored accordingly (NFPA 30 19.2.1 and 19.7)

Y N N/A DK

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#### Definitions:

*Approved* means approved or listed by a nationally recognized testing laboratory and approved by the local fire official, or the New Jersey Department of Community Affairs.

*Class I liquids* are flammable liquids (see definition of flammable liquids).

*Class IA liquids* are flammable liquids having a flash point below 73 °F. and a boiling point below 100 °F. Typical Class IA liquids include: acetaldehyde, ethyl ether, methyl ethyl ether, pentane and petroleum ether.

*Class IB liquids* are flammable liquids having flash points below 73 °F. and having boiling points at or above 100 °F. Typical Class IB liquids include: acetone, benzene, butyl acetate, denatured alcohol, ethyl alcohol, gasoline, gin (ethyl alcohol and water), heptane, hexane, isopropyl alcohol, methyl alcohol, methyl ethyl ketone, toluene and jet fuels.

*Class IC liquids* are flammable liquids having flash points at or above 73 °F. and below 100 °F. Typical Class IC liquids include: banana oil (isoamyl acetate), butyl alcohol, propyl alcohol, styrene, turpentine and xylene.

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*Class II liquids* include those with flash points at or above 100 °F. and below 140 °F. Typical Class II liquids include: diesel fuel, fuel oils, kerosene, Stoddard solvent, Anchor type car wash and mineral spirits.

*Class III liquids* shall include those with flash points at or above 140 °F. Class III liquids are subdivided into two subclasses: Class IIIA liquids shall include those with flashpoints at or above 140 °F and below 200 °F., except any mixture having components with flashpoints of 200 °F., or higher, the total volume of which make up 99 percent or more of the total volume of the mixture. Class IIIB liquids shall include those with flashpoints at or above 200 °F. This section does not cover Class IIIB liquids.

*Class IIIA liquids* shall include those with flash points at or above 140 °F.

*Combustible liquid* means any liquid having a flash point at or above 100 degrees Fahrenheit. Combustible liquids are known as Class II and Class III liquids.

*Deflagration Hazard* is determined to exist where either of the two following conditions is present: (1) deflagrable wood dust is present as a layer on upward facing surfaces at a depth greater than that permitted in Section 4.7, or (2) deflagrable wood dust is suspended in the air at a concentration in excess of 25% of the minimum explosive concentration, or MEC, under normal operating conditions. [NFPA 664 (3.3.7)]

*Flammable liquid* means any liquid having a flash point below 100 degrees Fahrenheit, and have a vapor pressure not exceeding 40 psia (pounds per square inch absolute) at 100 degrees Fahrenheit. Flammable liquids are known as Class I liquids and can be divided into Class IA, IB and IC.

*Flash point* means the minimum temperature in degrees Fahrenheit at which a flammable liquid will give off sufficient vapors to form an ignitable mixture with air near the surface or in the container, but will not sustain combustion.

*Minimum Explosive Concentration (MEC)* is defined as the minimum concentration of a combustible dust suspended in air, measured in mass per unit volume, which will support a deflagration. [NFPA 664 (3.3.17)]

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