



FIRE DEPARTMENT – CLASS 1 • FIRE AND ENVIRONMENTAL PROTECTION DIVISION
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**Plan Check Requirements for:
DRY CLEANING USING FLAMMABLE OR COMBUSTIBLE LIQUIDS
(Update – 1/17)**

The Fire and Environmental Protection Division of the Mountain View Fire Department will review your submitted plans using this plan check guideline.

Where appropriate, enter below the page number of your submitted plans where the item asked for is indicated and highlight the item in your plans. Include brochures, manufacturer’s cut sheets, and calculations with the plans when asked for.

California Fire Code Section 2107.1 references NFPA 32 for all regulations regarding installation and maintenance of dry-cleaning systems.

(Note: The requirements of NFPA 32, Chapter 8, apply to Type III-A and III-B dry-cleaning systems.)

Facility
Name: _____ **Address:** _____

Architect
Name: _____ **Phone:** _____ **PC#:** _____ **Date:** _____

Plan Checking

- 1. Three sets of plans (two wet-sealed by architect, engineer, or contractor of record) shall be submitted to the Building Inspection Division for routing.
- 2. Submit or update all required elements to the California Environmental Reporting System (CERS). Include the sizes of all tanks and containers, including the dry-cleaning unit, stills, separators, etc.

General Requirements

- 3. A minimum of two 2-A:20-B:C fire extinguishers shall be provided near the doors inside dry-cleaning rooms containing flammable/combustible liquids (CFC 2108.4). *Show the locations of the fire extinguishers on the plans.* Plan Page Number: _____.
- 4. NO SMOKING signs shall be posted in rooms containing flammable or combustible liquids (CFC 5703.5). *Show locations of signage on the plans.* Plan Page Number: _____.

5. Equipment used for dry cleaning shall be suitable for the type of solvent utilized (CFC 2105.1.2). *Attach manufacturer's cut sheets of the dry-cleaning equipment.*
6. Dry-cleaning solvents shall be classified according to their flash points as follows (CFC 2103.1). *Check the appropriate classification below:*
- Class I solvents are liquids having a flash point below 100°F (38°C).
 - Class II solvents are liquids having a flash point at or above 100°F (38°C) and below 140°F (60°C).
 - Class III-A solvents are liquids having a flash point at or above 140°F (60°C) and below 200°F (93°C).
 - Class III-B solvents are liquids having a flash point at or above 200°F (93°C).
 - Class IV solvents are liquids classified as nonflammable such as perchloroethylene.
7. Dry-cleaning plants and systems shall be classified based on the solvents used. Indicate below the proper classification of the proposed dry-cleaning plant (CFC 2103.2). *Check the appropriate plant/system below:*
- Type II Plant or System—Systems using Class II solvents.
 - Type III-A Plant or System—Systems using Class III-A solvents.
 - Type III-B Plant or System—Systems using Class III-B solvents.
 - Type IV Plant or System—Systems using Class IV solvents in which dry cleaning is conducted by the public.
 - Type V Plant or System—Systems using Class IV solvents in which dry cleaning is conducted by the public.
8. The transfer and circulation of solvents shall be through closed systems (CFC 2107.1, NFPA 32 §6.2.1). *Show the circulation piping on the plans.* Plan Page Number: _____.
9. If positive displacement pumps are used, they shall be fitted with relief valves or bypasses to prevent overpressure of the system (NFPA 32 §6.2.5). *Show these relief valves on the plans.* Plan Page Number: _____.
10. Flow and level sight glasses shall be protected against physical damage (NFPA 32 §6.2.3). *Show the protection on the plans.* Plan Page Number: _____.
11. Type IV and V dry-cleaning systems shall be provided with an automatically activated exhaust ventilation system to maintain a minimum of 100 fpm air velocity through the loading door when the door is opened. If an exhaust system is not used, an exhaust hood immediately outside of and above the loading doors is also acceptable (CFC §2105.3). *Show the exhaust system or exhaust hood on the plans. Show the electrical schematics for the interlock between the opening of the door and the activation of the exhaust.* Plan Page Number: _____.

12. Air for combustion for gas-fired and oil-fired devices, where such devices are located in the dry-cleaning rooms, shall come through ducts from a clean source of air outside the building (NFPA 32 §9.2.1.2). *Show the location of the air intake on the plans.* Plan Page Number: _____.

FOR CLASS II, III-A AND III-B DRY-CLEANING PLANTS, CONTINUE...

Heating of Liquids

13. The temperatures of Class II solvents shall not exceed 90°F (NFPA 32 §7.4.2.3.5.1). *Describe how temperatures will be monitored and controlled to keep from exceeding this limit.* Plan Page Number: _____.
14. When solvent coolers are used, visual and audible alarm devices shall be provided to warn the operator when the solvent temperature exceeds 90°F (NFPA 32 §7.4.2.3.5.2). *Attach manufacturer's cut sheets on the temperature sensor and alarm device. Also indicate on the plans the location of the alarm.* Plan Page Number: _____.

Occupancy Requirements

15. An automatic sprinkler system shall be installed in accordance with CFC §903.3.1.1 throughout dry-cleaning plants containing Class II and III solvents (CFC 2108.2). *Indicate the building is equipped with an automatic fire sprinkler system.* Plan Page Number: _____.
16. Dry-cleaning rooms and solvent storage rooms shall be located on the first story only (CFC 2107.2). *Indicate this on the plans.* Plan Page Number: _____.
17. The construction and occupancy of buildings or rooms in which dry-cleaning systems are located shall be identified (CFC 2107.1). Plan Page Number: _____.

Ventilation

18. A mechanical ventilation system designed to exhaust 1 cubic foot of air per minute for each square foot of floor area shall be installed in dry-cleaning rooms and in drying rooms (CFC 2105.2.3). *Attach manufacturer's cut sheets on the ventilation system indicating that it will meet this requirement.* Plan Page Number: _____.
19. The ventilation system shall operate automatically when the dry-cleaning equipment is in operation and shall have manual controls at an approved location (CFC 2105.2.3). *Provide electrical schematics showing how the ventilation system is tied into the operation of the equipment.* Plan Page Number: _____.

Fuel-Burning Equipment

20. Circulating air systems which return air from dry-cleaning rooms or solvent rooms to fuel-burning or other heated equipment shall not be used (CMC 505.1). *Show the air circulation path (incoming and outgoing air) for all rooms.* Plan Page Number: _____.

Solvent Containers, Tanks, and Transferring Equipment

21. Fill openings to storage tanks shall be located outside of the building (NFPA 32 §7.4.1.9). *Show the fill location on the plans.* Plan Page Number: _____.

- 22. Fill pipe inlets shall be permanently identified with the appropriate liquid classification (NFPA 32 §7.4.1.10). *Indicate the wording on the fill pipe label on the plans.* Plan Page Number: _____.
- 23. Emergency relief venting for aboveground tanks and containers shall be provided (NFPA 32 §7.4.1.3.1). *Attach manufacturer's cut sheets on the emergency relief vent and the pressure at which it discharges.* Plan Page Number: _____.
- 24. A gauging device shall be installed on inside storage or treatment tanks. Gauging devices shall be of a design that will not allow vapors to escape within the building or liquids to escape in case a gauge is broken (NFPA 32 §7.4.1.4 to §7.4.1.5). *Attach manufacturer's cut sheets of the gauging device.*
- 25. Pressure-relief devices shall be installed on treatment tanks that are subject to pressures greater than atmospheric which will prevent the pressures in the tank from exceeding 10 percent above the working pressure. Relief devices shall be connected to tanks by piping not less than 3/4" diameter without a shutoff valve in the piping (NFPA 32 §7.4.1.14 to §7.4.1.15). *Attach manufacturer's cut sheets on the pressure-relief device and the pressure at which it discharges. Indicate how the pressure-relief device will be attached to the tank on the plans.* Plan Page Number: _____.
- 26. Pressure-type filters shall be equipped with a pressure gauge and shall not be operated at pressures exceeding those for which they were designed (NFPA 32 §6.3.2 to §6.3.3). Filters shall be provided with an air-bleeding valve and line connected to discharge into a washer or into the storage tank vent line. Such air-bleeding lines shall not discharge into the room (NFPA 32 §6.4.1). *Show this equipment on the plans.* Plan Page Number: _____.
- 27. Pressure-relief devices shall be installed on pressure filters to prevent the pressure in the filter from rising more than 10 percent above its working pressure. Relief devices shall be connected to a dry-cleaning unit by piping not less than 3/4" diameter (NFPA 32 §6.3.4.1). *Attach manufacturer's cut sheets on the pressure-relief device and the pressure at which it discharges. Indicate how the pressure-relief device will be attached to the tank on the plans.* Plan Page Number: _____.
- 28. Sight glasses shall be constructed of materials suitable for use with the solvent and shall be protected against physical damage (NFPA 32 §6.2.2 to §6.2.3). *Indicate the materials of construction and protection of the sight glass.* Plan Page Number: _____.

Dry-Cleaning Units

- 29. Dry-cleaning units shall be well secured to the building or foundation (NFPA 32 §6.5.2). *Indicate how dry-cleaning machines will be secured on the plans.* Plan Page Number: _____.
- 30. Cylinder access doors shall be interlocked as follows (NFPA 32 §6.5.4):
 - a. Opening of the door(s) while there is solvent in the cylinder;
 - b. Opening the door(s) while the cylinder is rotating; and
 - c. Rotation of the cylinder or basket while the door(s) are open.*Show electrical schematics of the interlock.* Plan Page Number: _____.

- 31. Dry-cleaning units shall have a manually operated stop switch installed on or at each unit (NFPA 32 §6.5.5). *Indicate the location of the stop switch on the plans.* Plan Page Number: _____.
- 32. Dry-cleaning units shall be provided with an overflow pipe one size larger than the size of solvent supply line to the machine. Such overflow pipe shall be connected to the shell of the washer such that the top of overflow is below the bottom of the trunnion shaft. The overflow pipe shall be without shutoff valves and arranged to discharge to a suitable tank (NFPA 32 §6.5.7). *Show this equipment on the plans.* Plan Page Number: _____.
- 33. The solvent inlet pipe into a dry-cleaning machine shall be arranged to deflect the solvent stream away from the door opening (NFPA 32 §6.5.9). *Show this equipment on the plans.* Plan Page Number: _____.
- 34. Individual button and lint traps shall be provided for each dry-cleaning unit (NFPA 32 §6.5.8). *Show the traps on the plans.* Plan Page Number: _____.
- 35. A permanent sign shall be displayed near the door opening of each dry-cleaning machine, indicating it is not to be operated with solvents having a flash point less than the specified level. The sign shall also indicate the maximum rated cylinder speed (NFPA 32 §6.1.3). *Indicate the wording and location of signage on the plans.* Plan Page Number: _____.

Stills

- 36. Stills shall use steam, hot water, or oil as a heat source. If steam is used, a pressure-regulating valve shall be installed in the steam line to the still (NFPA 32 §7.4.3.3.1). *Indicate the heat source on the plans and show the pressure-regulating valves, if applicable.* Plan Page Number: _____.
- 37. Stills shall be designed to operate on the vacuum principle (NFPA 32 §7.4.3.3.3). *Attach manufacturer's cut sheets on the still showing this.* Plan Page Number: _____.
- 38. If a relief valve is provided, it shall be equipped with a vent line extending to the outside (NFPA 32 §7.4.3.3.4). *Show the vent line on the plans.* Plan Page Number: _____.
- 39. Stills shall be provided with a combination vacuum and pressure gauge (NFPA 32 §7.4.3.3.5). *Show this device on the plans.* Plan Page Number: _____.
- 40. Each still shall be equipped with an automatic valve to maintain the solvent level in the still at the proper height (NFPA 32 §7.4.3.3.6). *Show this device on the plans.* Plan Page Number: _____.

Drying Tumblers and Cabinets

- 41. Drying tumblers shall be well secured to foundations (NFPA 32 §6.5.2). *Indicate how drying tumblers will be secured on the plans.* Plan Page Number: _____.
- 42. Drying tumblers shall be provided with self-closing explosion hatches having an area equal to at least 1 square foot/15 cubic feet of cylinder volume (NFPA 32 §7.4.3.2.1). *Attach manufacturer's cut sheets on the hatches which verify that they meet these requirements. Include the sizing calculations in the plans.* Plan Page Number: _____.

- 43. Hatches on drying tumblers shall be arranged to open away from the operator (NFPA 32 §7.4.3.2.1). *Show this on the plans.* Plan Page Number: _____.
- 44. Drying tumblers in Type II dry-cleaning plants shall be provided with an approved automatic fire-extinguishing system installed and maintained in accordance with California Fire Code Chapter 9 (CFC 2108.3). *Show the extinguishing equipment on the plans.* Plan Page Number: _____.
- 45. Drying tumbler fans, blades, and running rings shall be constructed of nonferrous metal (NFPA 32 §7.4.3.2.4). *Show this on the plans.* Plan Page Number: _____.

Bonding and Grounding

- 46. Storage tanks, treatment tanks, filters, pumps, piping, ducts, dry-cleaning units, stills, tumblers, drying cabinets, and other equipment, if not inherently electrically conductive, shall be bonded together and grounded (CFC 2104.2.4). *Show the grounding/bonding on the plans.* Plan Page Number: _____.
- 47. Isolated units of equipment shall be grounded (NFPA 32 §7.4.4.2). *Show the grounding/bonding on the plans.* Plan Page Number: _____.
- 48. When fabrics are transferred from one piece of equipment to another, the two pieces of equipment shall be electrically bonded together (NFPA 32 §7.4.4.4). *Show the grounding/bonding on the plans.* Plan Page Number: _____.
- 49. Metal tops of spotting tables shall be permanently and effectively grounded (CFC 2106.3.4). *Show the spotting tables and their grounding/bonding on the plans.* Plan Page Number: _____.

Scouring, Brushing, and Spotting

- 50. Scouring, brushing, and spotting tables shall have a liquid-tight top with a curb on all sides not less than 1" high. The top of the table shall be pitched to ensure thorough draining to a 1.5" drain connected to a suitable container especially provided and marked for such purpose (CFC 2106.3.1). *Show the spotting tables and how they will meet these requirements on the plans.* Plan Page Number: _____.
- 51. Solvents shall be dispensed from approved safety cans (CFC 2106.1). *Attach manufacturer's cut sheets of the safety cans to be used.* Plan Page Number: _____.
- 52. Textiles which cannot be cleaned within dry-cleaning units shall be cleaned on scouring or brushing tables or in scrubbing tubs containing no more than three gallons of flammable or combustible solvent (CFC 2106.3.2). *Show these scouring tables or scrubbing tubs on the plans.* Plan Page Number: _____.
- 53. Scrubbing tubs used outside dry-cleaning units shall be secured to the floor and provided with permanent 1.5" trapped drains connecting to a suitable container especially provided and marked for such purpose (CFC 2106.3.2). *Show how scrubbing tubs will meet this requirement on the plans.* Plan Page Number: _____.