



California State Fire Marshal Information Bulletin – IB 10-11

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FIRE PROTECTION SYSTEMS FOR DRY CLEANING PLANTS WITH TYPE III-A DRY CLEANING SYSTEMS AND THE 2010 CALIFORNIA FIRE CODE REQUIREMENTS

The Office of the State Fire Marshal, in cooperation with the dry cleaning industry and local fire authorities, has addressed concerns regarding the *2010 California Fire Code (CFC)* and its affect on existing dry cleaning establishments. In an effort to assist small businesses and provide a safe and cost effective alternatives, this Information Bulletin is intended to provide clarification of the CFC requirements for fire protection systems and State Fire Marshal modifications that permit the use of *National Fire Protection Association (NFPA) 32* for fire protection systems. This Information Bulletin applies to new Type III-A dry cleaning plants and/or systems and existing dry cleaning plants that are converting to dry cleaning systems using Class IIIA solvents.

The CFC adopts by reference the *2009 International Fire Code*, published July 4, 2010 and effective January 1, 2011. The CFC requires an automatic fire sprinkler system to be installed throughout all new dry cleaning plants containing Type III-A dry cleaning systems pursuant to CFC, Section 1208.2. Additionally, these provisions also apply to existing dry cleaning plants that are converting from nonflammable or noncombustible dry cleaning solvents (e.g. perchloroethylene) to a Class IIIA solvent or converting to Type III-A dry cleaning system. Also, the provisions contained in the *2010 California Building Code (CBC)*, Section 307.1, exception 4 for Type III-A dry cleaning plants, require that such dry cleaning plants be separated from all other areas of the building by 1-hour fire barriers or 1-hour horizontal assemblies constructed in accordance with CBC Chapter 7.

The Office of the State Fire Marshal further modified the provisions of CFC, Section 1201 to include a new section 1201.1.1 which is an alternative compliance method to the provisions contained in Chapter 12 of the CFC as follows:

1201.1.1 Compliance alternate for dry cleaning plants. Dry cleaning plants shall be permitted to comply with the provisions of NFPA 32 in its entirety as an acceptable alternative to the requirements of this chapter.



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The intent of this State Fire Marshal modification is to afford existing dry cleaning plants the ability to operate and modify their plant and/or equipment in accordance with NFPA 32 a nationally recognized standard that pertains specifically to dry cleaning plants. NFPA 32 requires dry cleaning plants to be equipped with automatic fire sprinkler systems.

However, NFPA 32 also provides for alternatives. Specifically, when an existing dry cleaning plant converts from nonflammable or noncombustible dry cleaning solvents (e.g. perchloroethylene) to a Class IIIA solvent or converts to Type III-A dry cleaning system (in an existing building that is not protected by an automatic fire sprinkler system), NFPA 32 affords an alternative to the retrofitting of a building with an automatic fire sprinkler system by:

- (1) *Limiting the quantity of Class IIIA solvent in dry cleaning machines and storage to not exceed 330 gal, and,*
- (2) *requires dry cleaning machines to be equipped with instrumentation, equipment, or controls that provide any one of the following:*
 - (a) *Features that limit oxygen concentrations to less than 8 percent by volume*
 - (b) *Features that limit solvent vapor concentration to less than 25 percent of the Lower Explosive Limit (LEL)*
 - (c) *Features that limit solvent vapor concentration at or below 60 percent of the LEL where automatic instrumentation with safety interlocks is provided in accordance with NFPA 69, Standard on Explosion Prevention Systems*
 - (d) *Features that limit solvent temperatures to less than 16.7°C (30°F) below their flash points*
 - (e) *Features that incorporate equipment approved for use in Class I, Division 2 hazardous locations*
 - (f) *Features that incorporate an integral automatic fire-extinguishing system conforming with Section 4.6 of NFPA 32*

For a dry cleaning business located in a building not equipped with an automatic fire sprinkler system, the above alternative would be permitted. The provisions of NFPA 32 would continue to require that the dry cleaning plant be separated from all other occupancies in the building by 1-hour fire barriers or 1-hour horizontal assemblies constructed in accordance with CBC Chapter 7.



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Additional requirements may also be required for the equipment. Dry cleaning machines with drying capabilities and reclaiming tumblers shall be equipped with all of the following:

- (1) Automatic extinguishing systems installed, and,*
- (2) shall be provided with self-closing explosion hatches arranged to open away from the operator, and,*
- (3) have an area equal to at least 0.22 m²/m³ (1 ft²/15 ft³) of cylinder volume.*

Automatic extinguishing systems and self-closing hatches shall not be required if the equipment contains instrumentation, equipment, or controls that independently provide any one of the following:

- (1) Features that limit oxygen concentrations to less than 8 percent by volume*
- (2) Features that limit solvent vapor concentrations to less than 25 percent of the LEL*
- (3) Features that limit solvent vapor concentration at or below 60 percent of the LEL where automatic instrumentation with safety interlocks is provided in accordance with NFPA 69, Standard on Explosion Prevention Systems*
- (4) Features that limit solvent temperatures to less than 16.7°C (30°F) below their flash points*

This Information only identifies a few of the pertinent provisions related to dry cleaning plants and equipment. Each dry cleaning establishment would need to complete a review and/or analysis of the 2010 California Fire Code and NFPA 32 for the dry cleaning plant and associated equipment to determine the most applicable and feasible application of the regulations when making a changing operations or converting equipment. Dry cleaning establishments that are considering changing operations or converting equipment to utilize flammable or combustible solvents must contact the local fire official prior to any change for additional information, permits and local regulations.

For more information please visit our website <http://osfm.fire.ca.gov>