

Special Occupancy Requirements



CHAPTER 20 – AVIATION FACILITIES

CHAPTER 21 – DRY CLEANING

**CHAPTER 22 – COMBUSTIBLE
DUST-PRODUCING OPERATIONS**

Special Occupancies



- The objective of this module is to make the learner aware of special circumstances and code requirements specific to special occupancies and operations.
- Today we will discuss the IFC requirements for
 - Aviation Facilities
 - Dry Cleaners
 - Combustible dust producing operations

Chapter 20 – Aviation Facilities



- 2001.1 - Applies to airports, heliports, helistops, and aircraft hangars.
- 2003.2 – Smoking is prohibited in aircraft refueling vehicles, aircraft hangars, and aircraft operation areas.
- 2004.5 – aircraft engines shall not be run in aircraft hangers except in approved engine test areas.

Chapter 20 – Aviation Facilities



- 2004.6 – Open flame. Repairing of aircraft requiring the use of open flames, spark-producing equipment or heating of parts above 500 °F shall only be done outdoors or in an approved Group F-1 occupancy.



Chapter 20 – Aviation Facilities



- Section 2005 – Portable Fire Extinguishers: shall be installed and maintained per IFC 906.
- Also required on towing vehicles, welding apparatus, aircraft fuel-service tank vehicles, and at fuel dispensing locations.
- Use of a fire extinguisher for any reason shall be reported to the manager of the airport immediately after use.

Chapter 20 – Aviation Facilities



- Section 2006 – Aircraft motor vehicle fuel-dispensing facilities: shall be in accordance with IFC Chapter 23.
- 2006.2 – Airport fuel shall be designed and constructed in accordance with NFPA 407.



Chapter 20 – Aviation Facilities



- 2006.3 – Aircraft-fueling vehicles and accessories shall be designed and constructed in accordance with NFPA 407.
 - 2006.3.1 Transfer apparatus must be an approved type
 - 2006.3.4 Electrical wiring, switches, lights and other sources of ignition shall be enclosed in vapor-tight housing.
 - 2006.3.5 Equipment compartments shall be ventilated at floor level.
 - 2006.3.7 Electrical bonding: transfer apparatus shall be metallicity interconnected with tanks, chassis, axles, and springs of aircraft-fueling vehicles.
 - 2006.7.1 Vehicles shall be provided with substantial heavy duty electrical cable of sufficient length to be bonded to the aircraft to be serviced.

Chapter 20 – Aviation Facilities



- 2006.4 – Aircraft-fueling vehicles shall be maintained in good repair and leak free.
- 2006.5.3 – Aircraft-fueling vehicles shall be attended and operated by persons instructed in methods of proper use and operation of the equipment. Training shall include understanding of the hazards associated with fueling aircraft and fire safety training. Records of training shall be provided to the fire code official upon request.

Chapter 20 – Aviation Facilities



- Section 2007 – Helistops and Heliports
- 2007.3 - Landing areas on structures shall be maintained so as to confine flammable or combustible liquid spillage to the landing area itself.
- 2007.5 - A building with a rooftop helistop or heliport shall be provided with a Class I or III standpipe system within 150 feet of all parts of the roof.

Chapter 20 – Aviation Facilities



- 2007.6 – Foam fire-protection capabilities shall be provided for rooftop heliports.
- 2007.8 – Before operating helicopters from helistops or heliports, approval shall be obtained from the Federal Aviation Administration.

Chapter 20 – Aviation Facilities



- Questions about IFC Chapter 20?

Chapter 21 – Dry Cleaning



- Code requirements for dry cleaning plants depend on the class of solvent used in the dry cleaning process.

Class of Solvent	Flash Point
I	< 100°F
II	≥100°F and <140°F
IIIA	≥140°F and <200°F
IIIB	≥200°F
IV	Non-flammable

Chapter 21 – Dry Cleaning



- Classification of Dry Cleaning Plants

Classification	Criteria
Type I	Systems using Class I solvents
Type II	Systems using Class II solvents
Type IIIA	Systems using Class IIIA solvents
Type IIIB	Systems using Class IIIB solvents
Type IV	Systems using class IV solvents and which is not conducted by the public
Type V	Systems using class IV solvents and which is conducted by the public

Chapter 21 – Dry Cleaning



- NIOSH reports that there are 36,000 Dry Cleaning plants in the US. Of these, 85% are small businesses and employ 10 or fewer employees.
- According to the DOL, only 10% of dry cleaners in the US use flammable solvents that are petroleum based.
- 85% of dry cleaning shops use non-flammable perchloroethylene.



Chapter 21 – Dry Cleaning



- Dry cleaning is accomplished using one of several methods. The most common are...
 - Immersion and agitation with the solvent in a closed machine
 - Brushing or scouring with the cleaning solvent
 - Dual phase processing: dry cleaning equipment that also performs as standard laundering either before or after the dry cleaning.
- Dry Cleaning Plants fall under the Occupancy Group F-1 – moderate hazard
- 2107.1 – Dry cleaning systems including dry cleaning units, washing machines, stills, tumblers, drying cabinets, pumps, piping, valves, filters, solvent coolers, and appurtenances shall be installed and maintained per NFPA 32.

Chapter 21 – Dry Cleaning



- 2105.1.2 – The manufacturer shall provide data plates on all dry cleaning machines indicating the class of solvent for which each machine is designed.
- 2105.1.3 – open systems are prohibited. Dry cleaning by immersion and agitation in open vessels in not allowed.
- 2105.1.5 – proper maintenance and operating practices shall be observed to prevent the leakage of solvents or the accumulation of lint.

Chapter 21 – Dry Cleaning



- 2105.3 – Type IV and V dry cleaning shall be provided with an automatically activated exhaust system to maintain a minimum of 100 feet per minute air velocity or an exhaust hood which operates at a prescribed rate directly above the loading door.
- 2106 – Spotting and pre-treating:
 - Class I solvents are permitted to be used for spotting and pre-treating provided they are stored and dispensed from approved safety cans of not more than 1 gallon capacity or plastic containers of not more than 1 pint.

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- 2106.3.1 – Spotting tables on which articles are soaked in solvent shall have a liquid tight top with a curb on all sides of not less than 1 inch high.

- 2106.3.2 – Scrubbing tubs shall comply with the following:
 - Only class II and III liquids shall be used.
 - Total amount of solvent in open containers shall not exceed 3 gallons.
 - Scrubbing tubs shall be secured to the floor.
 - Scrubbing tubs shall be provided with a permanent 1.5” drain with a trap and connected to an approved container.

Chapter 21 – Dry Cleaning



- 2108 – Fire Protection systems shall installed, tested, and maintained per IFC Chapter 9.
 - 903.2.4 - Sprinkler system required for F-1 when fire areas exceeds 12,000 square feet.
- 2108.2 – Automatic sprinkler system is required for Type II, Type IIIA and Type IIIB dry cleaning plants.

Chapter 21 – Dry Cleaning



- Questions about IFC Chapter 21 - Dry Cleaning?



Chapter 22 – Combustible Dust Producing Operations



- 2201.1 – Applies to the equipment, process and operations involving dust explosion hazards.



Chapter 22 – Combustible Dust Producing Operations



- **2201.2 – requires permits for combustible-dust producing operations (IFC 105.6).**
 - IFC 506 requires permits for the operation of a grain elevator, flour starch mill, feed mill, or a plant pulverizing aluminum, coal, cocoa, magnesium, spices or sugars, or other operations producing combustible dusts as defines in Chapter 2.
 - Chapter 2 defines combustible dust as finely divided solid material which is 420 microns or less in diameter and which, when dispersed in air in the proper proportions, could be ignited by a flame or spark or other source of ignition. Combustible dust will pass through a US No. 40 standard sieve.

Chapter 22 – Combustible Dust Producing Operations

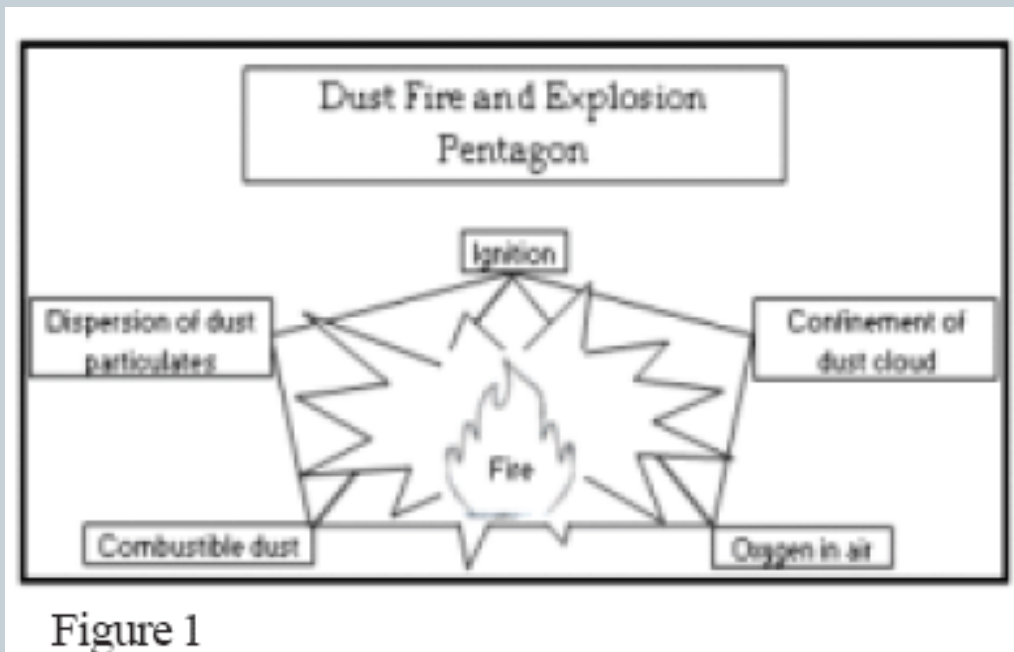
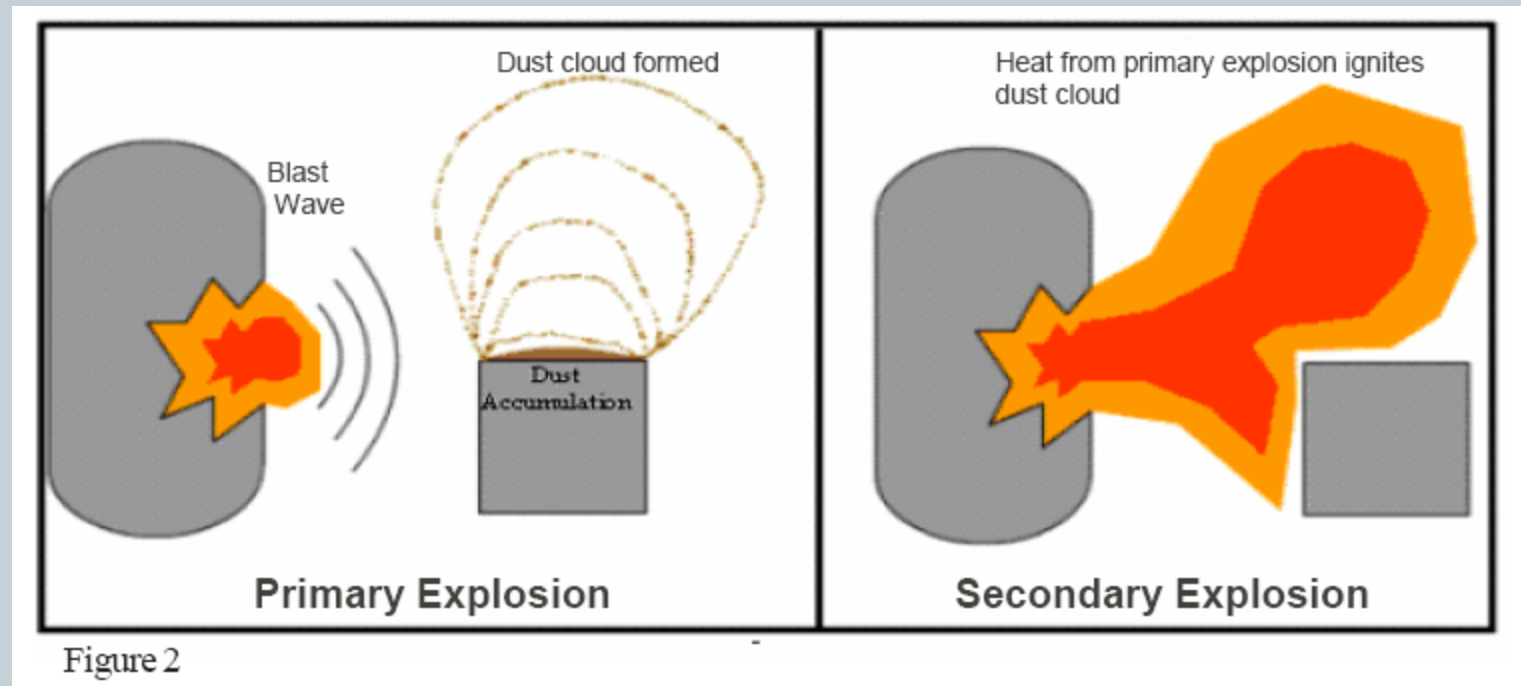


Figure 1

Chapter 22 – Combustible Dust Producing Operations



Chapter 22 – Combustible Dust Producing Operations



- 2203.1 - Smoking or the use of open heating devices employing an open flame, or the use of spark producing equipment is prohibited in areas where combustible dust is generated, stored, manufactured, processed or handled.
- 2203.2 – Accumulation of combustible dust shall be kept to a minimum in the interior of buildings. Accumulated combustible dust shall be collected by vacuum cleaning or other means that will not place combustible dust into suspension in air. Forced air or similar methods shall not be used to remove dust from surfaces.

Chapter 22 – Combustible Dust Producing Operations



- **2204.1 – The Fire Code Official is authorized to enforce applicable provisions of the codes and standards listed in Table 2204.1 to prevent and control dust explosions.**

Chapter 22 – Combustible Dust Producing Operations



- **Explosion Protection Standards**
 - NFPA 61 – Agricultural and Food Products
 - NFPA 69 – Explosion Prevention
 - NFPA 70 – National Electrical Code
 - NFPA 85 – Boiler and Combustion System Hazards
 - NFPA 120 – Coal Preparation Plants
 - NFPA 484 – Combustible Metals, Metal Powders and Metal Dusts
 - NFPA 654 – Manufacturing, Processing, and Handling Combustible Particulate Solids
 - NFPA 655 – Prevention of Sulfur Fires and Explosions
 - NFPA 664 – Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities

Chapter 22 – Combustible Dust Producing Operations



- Questions about Chapter 22?