



FIRE DEPARTMENT – CLASS 1 • FIRE AND ENVIRONMENTAL PROTECTION DIVISION
500 Castro Street • City Hall • 4th Floor • Mountain View • California • 94041-2010
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**PLAN CHECK REQUIREMENTS FOR
SPRAY FINISHING
(Update – 1/17)**

The Fire and Environmental Protection Division of the Mountain View Fire Department (650-903-6378) 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.

Facility
Name: _____ Address: _____

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

Applies To:

1. The application of flammable or combustible paints, varnishes, lacquers, stains, or other flammable or combustible liquid applied as spray by compressed air, airless or hydraulic atomization, steam, electrostatic, or other methods or means in continuous or intermittent processes.
2. Dip tank operations in which articles or materials are passed through contents of tanks, vats, or containers of flammable or combustible liquids, including coating, finishing, treatment, and similar processes.
3. The application of combustible powders by powder spray guns, electrostatic powder spray guns, fluidized beds, or electrostatic fluidized beds.
4. Floor surfacing or finishing operations using Class I or II liquids in areas exceeding 350 square feet.
5. Class I or Class II liquids when applied by brush or roller in quantities exceeding 1 gallon.

1. Conspicuous signs with the following warning shall be posted in the vicinity of spraying areas, dipping operations, and paint storage rooms:

<p style="text-align: center;">NO WELDING The use of welding or cutting equipment in or near this area is dangerous because of fire and explosion hazards. Welding and cutting shall be done only under the supervision of the person in charge.</p>

(CFC 2403.2.7). Indicate the sign and its location on the plans. Plan page number: _____.

2. Spray booths must be made of not less than 18-gauge thickness steel (CFC 2404.3.2.1). Spray rooms shall be separated from the remainder of the building by a minimum one-hour fire-rated barrier (CBC 416.2). *Attach manufacturer's cut sheets of the spray booth to the plans.* Plan Page or Cut Sheet Page Number: _____.
3. Aggregate area of spray booths in a building shall not exceed the lesser of 10 percent of any floor of the building or the basic area allowed for a Group H, Division 2 occupancy (CFC 2404.3.2.6). *Attach calculations to the plans showing this limit is not exceeded.* Plan Page Number: _____.
4. Spray booth area cannot exceed the lesser of the aggregate area (from Item No. 3 above) or 1,500 square feet (CFC 2404.3.2.6). *Attach calculations to the plans showing this limit is not exceeded.* Plan Page Number: _____.
5. Spray booth floors shall be of noncombustible and nonsparking materials (CFC 2404.3.1.1). *Indicate materials of construction on the plans.* Plan Page or Cut Sheet Number: _____.
6. Three-foot (3') clearance is required around the spray booth (CFC 2404.3.2.5). *Indicate the clearance distance on the plans.* Plan Page Number: _____.
7. Fixed lighting shall be of heat-treated or hammered wire glass (CFC 2404.6.2.1). *Attach manufacturer's cut sheets of the lighting.* Plan or Cut Sheet Page Number: _____.
8. Exit doors shall not be less than 2'6" x 6'8" (CFC 2404.3.2.4). *Indicate door dimensions on the plans.* Plan Page Number: _____.
9. If the booth uses filter rolls which automatically advance when the air velocity drops below 100 linear feet per minute, spraying must stop when roll fails to advance automatically (CFC 2404.7.8.4). *Show the electrical schematics for the spraying and roll interlock.* Plan Page Number: _____.
10. When the air velocity drops below 100 linear feet per minute, a visible gauge must indicate this situation and an audible alarm must sound (CFC 2404.7.8.3). *Attach manufacturer's cut sheets for the gauge and alarm.* Plan or Cut Sheet Page Number: _____.
11. No open flames or spark-producing devices are allowed within 20' of the booth unless separated by a partition (CFC 2403.2.2). *List all spark-producing devices and indicate where they will be stored and their distances from the spray booth.* Plan Page Number: _____.

12. Space heaters, steam pipes, or other hot surfaces shall not be located in the spraying area (CFC 2403.2.3). *If any of these devices will be used, list them and show where they will be stored.* Plan Page Number: _____.
13. Electrical equipment in spraying areas located such that deposits of combustible residues could readily accumulate thereon shall be specifically approved for locations containing deposits of readily ignitable residue and explosive vapors (CFC 2403.2.1.2). *Attach manufacturer's cut sheets on all electrical equipment subject to combustible residues.*
14. Electrical wiring and equipment not subject to deposits of combustible residues but located inside the spray booth shall be of an explosion-proof type approved for use in a Class I, Division 1 hazardous location (CFC 2403.2.1.1). *Indicate the type of electrical wiring used on the plans.* Plan Page Number: _____.
15. Electrical wiring, motors, and other equipment located outside but within 5' horizontally and 3' vertically of openings in a spray booth shall be approved for use in a Class I, Division 2, hazardous location and protected from falling hot particles by partitions, guards, or enclosures (CFC 2403.2.1.3). *Indicate the type of electrical equipment and type of protection on the plans.* Plan Page Number: _____.
16. Metal parts of the spray booth, exhaust ducts, and piping shall be electrically grounded (CFC 2403.2.5). *Show the grounding rod and bonding straps on the plans.* Plan Page Number: _____.
17. Spraying equipment shall be interlocked with ventilation so that spraying operations cannot be conducted unless the ventilation system is working (CFC 2404.6.1.2.1). *Show the electrical schematics for the spray and ventilation interlock on the plans.* Plan Page Number: _____.
18. Air velocity over the open face of the spray booth shall not be less than 100 linear feet per minute (CFC 2404.7.3.1). *Attach manufacturer's cut sheets on the ventilation system to the plans.* Plan Page Number: _____.
19. Each spray booth must have an independent exhaust discharging outside the building exterior (CFC 2404.7.5). *Show the exhaust ducting on the plans.* Plan Page Number: _____.
20. Electric motors driving exhaust fans shall not be inside spray booths or exhaust ducts (CFC 2404.7.7). *Show location of all motors.* Plan Page Number: _____.
21. Fan rotating elements shall be of nonferrous or noncombustible materials (CFC 2404.7.7). *Specify materials of construction on plans.* Plan Page Number: _____.
22. Exhaust ducts shall be constructed of steel (CMC 506.2). *Sheet metal thickness shall comply with CMC Tables 506.2(1) and 506.2(2).*
23. The point of discharge of exhaust ducts shall be not less than the following (CFC 2404.7.6):
- 30' from property line;
 - 10' from openings into the building;
 - 6' from exterior walls or roofs;
 - 30' from combustible walls or openings into the building which are in the direction of the exhaust discharge;

- 10' above adjoining grade.

Indicate distances from exhaust duct discharge to property lines, building openings, exterior walls and roof, combustible walls, and adjoining grade on the plans. Plan Page Number: _____.

24. Clearance between combustible construction and the exhaust duct shall be not less than 18" (CMC 506.7). *Reduction between combustible construction and the exhaust duct may be reduced when combustible construction is protected in accordance with Table 506.7. Indicate the clearance and type of construction on the plans. Plan Page Number: _____.*
25. Ducting bends shall not be greater than 45 degrees (CMC 506.3). *Show all ducting and angles of bends in the plans. Plan Page Number: _____.*
26. Cleanout openings shall be provided at intervals which allow thorough cleaning of the ducts. *Show all cleanout openings in the ducts. Plan Page Number: _____.*
27. Cleanout openings shall be equipped with tight-fitting sliding or hinged doors constructed of metal equal to or greater than the duct thickness. Such doors shall also be provided with a substantial latch to hold the door tightly closed. *Indicate the location and thickness of the hinged doors. Plan Page Number: _____.*
28. Booths shall be protected by an approved fire-extinguishing system. The system shall be extended to exhaust plenums, exhaust ducts, and both sides of dry filters when such filters are used (CFC 2404.4). *Plan Page Number of Sprinkler System: _____.*
29. At least one 4-A:40-B:C fire extinguisher shall be located within 30' of the spray booth (CFC 2404.4.1). *Indicate the type and location of fire extinguishers on the plans. Plan Page Number: _____.*
30. Spray guns and equipment-cleaning machines shall be listed and approved for this use (CFC 2403.3.5). *Attach manufacturer's cut sheets on the guns and equipment, including appropriate listings.*

For Drying Apparatus:

31. When a portable infrared drying apparatus is used, electrical wiring and equipment shall comply with the CEC (CFC 2404.6.1.2.2). *Attach manufacturer's cut sheets on the drying apparatus. Plan Page Number or Cut Sheet Number: _____.*
32. Interlocks shall be provided which (CFC 2404.6.1.2.1):
- 1. Prevent spraying while drying operations are in progress;
 - 2. Purge spray vapors for three minutes minimum before drying can begin;
 - 3. Shut down drying system if ventilation fails;
 - 4. Shut down drying system if air temperature exceeds 200 degrees.
- Show the electrical schematics for the interlocks. Plan Page Number: _____.*
33. If portable infrared drying apparatus is used, all electrical equipment located within 18" of floor level shall be approved for Class 1, Division 2, wiring (CFC 2404.6.1.2.2). *List all electrical equipment and specify type of wiring. Plan Page Number: _____.*

34. If a drying/baking unit utilizes a heating system having open flames or that are capable of producing sparks, it shall not be installed inside the spray area (CFC 2404.6.1). *Show location of the drying/baking unit as well as electrical schematics for the required interlocks.* Plan Page Number: _____.

For Dipping Operations:

35. If conveyORIZED dipping system is used, an interlock is required such that failure of the ventilation system will stop the conveyor (CFC 2405.8). *Show the electrical schematics for the ventilation and conveyor interlock.* Plan Page Number: _____.
36. Dip tanks shall be made of noncombustible materials and supports made of heavy metal or reinforced concrete (CFC 2405.3) *Specify the materials of construction for the dip tank and drain board.* Plan Page Number: _____.
37. If a dip tank exceeds 150-gallon capacity or 10 square feet in liquid surface area, an overflow pipe is required located at least 6" below the tank top (CFC 2405.3.1). *Show location of the pipe on the plans.* Plan Page Number: _____.
38. If a dip tank exceeds 500-gallon capacity, the tank shall have an automatic and manual drain which can drain the tank contents in event of fire. Manual operation must be from a safe location. If the liquid cannot gravity flow, a pump is required (CFC 2405.3.2). *Attach manufacturer's cut sheets for the automatic drain which explains how it will be activated in a fire. Show the location of the manual drain on the plans.* Plan Page Number: _____.
39. If a dip tank uses a conveyor system, an interlock system must be provided which will stop the conveyor and open the bottom drain during a fire (CFC 2405.8). *Show the electrical schematics for the interlock and drain on the plans.* Plan Page Number: _____.
40. Open flames and spark-producing devices shall be at least 20' from vapor areas unless separated by a tight partition (CFC 2403.2.2). *Indicate on the plans any flame or spark-producing devices and their distances from the tank.* Plan Page Number: _____.
41. Electrical wiring and equipment in vapor areas shall be explosion-proof Class I, Division 1, or Class II (CFC 2403.2.1.1). *Indicate the type of wiring on the plans.* Plan Page Number: _____.
42. Electrical equipment in flammable vapor areas located such that deposits of combustible residues could readily accumulate thereon shall be specifically approved for locations containing deposits of readily ignitable residue and explosive vapors in accordance with the California Electrical Code (CFC 2403.2.1.4). *Describe any equipment within 20' of the dip tank vapor area and specify the type of wiring on the plans.* Plan Page Number: _____.
43. Approved metal waste cans are required for waste and rags used in connection with the dipping operations (CFC 2403.4.3). *Attach manufacturer's cut sheets for the waste cans.*
44. At least one 4-A:40-B:C fire extinguisher shall be located within 30' of the dip tank (CFC 2405.4.2). *Indicate the type and location of fire extinguishers on the plans.* Plan Page Number: _____.

- 45. If dip tank exceeds 150-gallon capacity or 10 square foot liquid surface area, a fire extinguishing system or automatic-closing cover is required (CFC 2405.4.1.1). *Indicate which system will be used on the plans.* Plan Page Number: _____.
- 46. If the: (1) dip tank exceeds 10-gallon capacity; and (2) surface area exceeds 4 square feet; and (3) tank contents has flash point under 110 degrees where the tank temperature may exceed this flash point, a fire extinguishing system or automatic-closing cover is required (CFC 2405.4.1.1). *Indicate which system will be used on the plans.* Plan Page Number: _____.
- 47. If automatic covers are used, they shall be provided with an interlock which closes them in the event of a fire (CFC 2405.3.4). *Attach manufacturer's cut sheets on the heat sensor. Show the electrical schematics for the interlock.* Plan Page Number: _____.
- 48. If automatic covers are used, they shall be of substantial noncombustible construction or of tin-clad type with enclosing metal applied with locked joints (CFC 2405.3.4.1). *Call out the materials of construction for the cover.* Plan Page Number: _____.
- 49. Tanks shall be provided with a noncombustible hood and vent. Vent ducts shall be treated as flues and kept away from combustible roof materials (CFC 2405.9.2). *Call out the location and materials of construction for the hood and vent.* Plan Page Number: _____.
- 50. Tanks shall be equipped with high-temperature/low-level shutoff controls. The high-temperature sensor shall sound an alarm when the temperature of the quenching medium reaches 50 degrees below the flash point (CFC 2405.9.3). *Attach manufacturer's cut sheets on the high-temperature/low-level sensor. Indicate the location of the alarm on the plans.* Plan Page Number: _____.
- 51. Hardening and tempering tanks over 500-gallon capacity or 25 square foot surface area shall be equipped with either an automatic fire-extinguishing system or automatic-closing tank cover (CFC 2405.9.4). *Indicate whether any hardening or tempering tanks will be installed, and, if so, whether a fire-extinguishing system or tank cover will be employed.* Plan Page Number: _____.
- 52. If flow-coating operations are used, paint shall be applied by a direct low-pressure pump with an interlock which will shut down the pump in case of fire (CFC 2405.10.1). *Attach manufacturer's cut sheets on the heat sensor. Show the electrical schematics for the interlock.* Plan Page Number: _____.
- 53. Control of sources of ignition shall comply with CFC 2403.2. *Indicate the type of grounding and bonding on the plans.* Plan Page Number: _____.

For Electrostatic Apparatus:

- 54. Electrostatic apparatus shall be of approved types (CFC 2407.1). *Attach manufacturer's cut sheets on the electrostatic apparatus.* Plan Page or Cut Sheet Number: _____.
- 55. A suitable sign stating that a distance of at least twice the sparking distance between the painted object and the electrode shall be conspicuously posted (CFC 2407.2). *Show the sign location on the plans.* Plan Page Number: _____.

56. An interlock system which will automatically disconnect the power supply to the high-voltage transformer and signal the operator is required when (CFC 2407.8):
- 1. The ventilation equipment fails or is stopped;
 - 2. The conveyor carrying parts past the high-voltage grid is stopped;
 - 3. A ground on the high-voltage grid occurs; and
 - 4. Twice the sparking distance clearance is compromised.
- Show the electrical schematics for the interlock and the ventilation system, conveyor, and grid. Plan Page Number: _____.*
57. Railings, fencing, or guards shall be placed around the equipment to isolate it from personnel. They shall be adequately grounded and bonded and located at least 5' from the equipment (CFC 2407.3.1). *Show the guard placement around the equipment and the bonding on the plans. Plan Page Number: _____.*
58. Areas used for electrostatic spray finishing shall be equipped with a 4-A:40-B:C fire extinguisher (CFC 2404.4.1). *Indicate the type and location of the fire extinguisher on the plans. Plan Page Number: _____.*

For Powder Coating Processes:

59. Powder coating shall be conducted in completely enclosed rooms constructed of noncombustible materials, enclosed powder coating facilities, or adequately ventilated spray booths (CFC 2406.2). *Indicate the type of room to be used. Plan Page Number: _____.*
60. Exhaust ventilation must be provided to maintain the atmosphere below one-half the lower explosive limit for the materials being applied (CFC 2406.7). *Attach manufacturer's cut sheets on the exhaust ventilation system. Plan Page Number: _____.*
61. Precautions shall be taken to minimize the possibility of ignition by static electrical sparks through static bonding and grounding, where possible, of powder transport, application and recovery equipment (CFC 2406.6.4). *Show location of grounding and bonding apparatus. Indicate the location of the warning sign. Plan Page Number: _____.*
62. Hand electrostatic equipment shall be interlocked with the ventilation system so that equipment cannot be operated unless the ventilation fans are in operation (CFC, 2407.9). *Show the electrical schematics of the interlock on the plans. Plan Page Number: _____.*
63. Powder coating areas shall be protected by an approved automatic fire-extinguishing system (CFC 2406.4). *Show the fire-extinguishing system on the plans. Plan Page Number: _____.*
64. Upon detection of a fire by a flame-detection device, an interlock system shall (CFC 2406.4.1):
- 1. Shut down power to conveyors, ventilation, transfer, and powder collection equipment;
 - 2. Close dampers in ductwork;
 - 3. Activate an alarm throughout the powder coating room or booth.
- Attach manufacturer's cut sheets on the flame detection device. Plan or Cut Sheet Page Number: _____.* *Show the electrical schematics for the interlock and conveyors, ventilation, transfer, and powder collection system, dampers, and alarm. Plan Page Number: _____.*

For Organic Peroxide and Dual-Component Coatings:

- 65. Spray guns and associated equipment shall be specifically manufactured for such use (CFC 2408.3). *Attach manufacturer's cut sheets on the spray guns and associated equipment.* Plan Page or Cut Sheet Number: _____.
- 66. Only nonsparking tools shall be used in areas where organic peroxides are stored, mixed, or applied (CFC 2408.5). *Specify the types of tools in the plans.* Plan Page Number: _____.
- 67. Personnel working with organic peroxides and dual-component coatings shall be specifically trained to work with these materials (CFC 2408.4.6). *List the personnel and their specific training courses in the plans.* Plan Page Number: _____.