



Corona Fire Department

GUIDELINE FOR INDUSTRIAL OVENS PER 2016 CALIFORNIA FIRE CODE

PURPOSE

The intent of this guideline is to provide the minimum standards necessary for the installation and operation of industrial ovens. The requirements are prescribed in 2016 California Fire Code Chapter 30, the California Mechanical Code and the applicable provisions of NFPA 86.

SCOPE

This guideline applies to industrial ovens and furnaces installed and operated in the City of Corona. The terms “ovens” and “furnaces” are used interchangeably.

DEFINITIONS

Furnace – Class A: an oven or furnace operating at approximately atmospheric pressure with a potential explosion or fire hazard which may occur from the presence of flammable volatiles or combustible materials processed or heated in the furnace. Such materials may result from the following:

1. Paints, powders, inks, and adhesives from finishing processes, such as dipped, coated, sprayed and impregnated materials.
2. The substrate material.
3. Wood, paper and plastic pallets, spacers, or packaging materials.
4. Polymerization or other molecular rearrangements.
5. Potentially flammable materials, such as quench oil, water-borne finishes, cooling oil or cooking oils that present a hazard are ventilated according to Class A standards.

Furnace – Class B: An oven or furnace operating at approximately atmospheric pressure where no flammable volatiles or combustible materials are being heated.

Furnace – Class C: An oven or furnace that has a potential hazard due to a flammable or other special atmosphere being used for treatment of material in process. This type of furnace can use any type of heating system and includes a special atmosphere supply system. Also included in Class C classifications are integral quench furnaces and molten salt bath furnaces.

Furnace – Class D: An oven or furnace that operates at temperatures from above ambient to over 5000°F and at pressures normally below atmospheric using any type of heating system. These furnaces can include the use of special processing atmospheres.

REQUIREMENTS

1. Location of furnaces or ovens shall be in accordance with CFC 3003.
 - a. Ventilation: Enclosed rooms containing ovens or furnaces shall be provided with combustion air and ventilation air in accordance with the California Mechanical Code (CMC), per CFC 3003.1.
 - b. Exposure: The potential for fire, damage to the building, explosion or injury which results from over-heating, or from the failure of equipment or piping shall be considered when locating ovens and furnaces, per CFC 3003.2.
 - c. Industrial ovens and furnaces shall be located so as to not pose an ignition hazard to flammable vapors, mists or combustible dusts, per CFC 3003.3.
 - d. Roof and floors of ovens shall be insulated and ventilated to prevent temperatures at combustible ceilings and floors from exceeding 160°F, per CFC 3003.4.
2. Fuel-gas piping shall meet the requirements of CFC 3004 and the California Mechanical Code (CMC).
 - a. An approved shut off valve shall be provided in accordance with the California Mechanical Code (CMC) per CFC 3004.2.
 - b. Valves for fuel supply lines shall be located within 6' of the appliance served.

Exception: When approved and the valve is located within the same general area as the appliance it serves.
 - c. The manual fuel shut-off valve shall provide permanent visual indication of the valve being open or closed. Manual fuel shut off valves shall not be provided with removable handles or wrenches unless approved, and can only be installed parallel with the fuel line when the valve is in the open position.
3. Interlocks shall be provided for Class A ovens so that conveyors or sources of flammable or combustible materials shall shut down if either the exhaust or the recirculation air supply fails, per CFC 3005.1.
4. Fire protection shall be provided in accordance with CFC 3006.
 - a. Class A and B ovens which contain or are used for the processing of, combustible materials shall be protected by an approved automatic fire extinguishing system complying with CFC Chapter 9.
 - b. Fixed-fire extinguishing systems shall be provided for Class C or D ovens to protect against such hazards as overheating, spillage of molten salts or metals, quench tanks, ignition of hydraulic oil and escape of fuel. It shall be the responsibility of the owner to consult with the fire code official regarding the necessary requirements.
 - c. Portable fire extinguishers complying with CFC 906 shall be provided not closer than 15' or a maximum of 50', per CFC 3006.3.
5. Furnace system information shall be posted on an approved, clearly worded, and prominently displayed safety design data form or manufacturer's nameplate. Such information shall include the safe operating condition for which the system was designed, built, altered or extended, per CFC 3007.1.
6. Safety data for Class A solvent atmosphere ovens shall be provided on the manufacturer's nameplate. In accordance with CFC 3007.2, the nameplate shall also provide the following:

- a. The solvent used.
- b. The number of gallons used per batch or per hour of solvent entering the oven.
- c. The required purge time.
- d. The oven operating temperature.
- e. The exhaust blower rating for the number of gallons of solvent per hour or batch at the maximum operating temperature.

Exception: For low-oxygen ovens, the maximum allowable oxygen concentration shall be included in the place of the exhaust blower ratings.

7. Operating, maintenance and supervisory personnel shall be trained in the operation of the equipment, per CFC 3007.3. Training documentation shall be available to the authority having jurisdiction upon request.
8. Equipment shall be maintained in accordance with the manufacturer's instructions per CFC 3007.4. Maintenance documentation shall be available to the authority having jurisdiction upon request.