



CLARK COUNTY FIRE DEPARTMENT - FIRE PREVENTION BUREAU

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Permit Submittal Guideline

INDUSTRIAL OVENS

This guide is to assist in the permitting process for obtaining an annual renewable operational permit to operation an industrial oven regulated by Chapter 30. An annually, renewable operational permit is required per section 105.5.27 of the IFC.

APPLICABLE CODES:

The following codes and standard apply to this permit.

- *International Fire Code, 2024 edition (IFC)*
- *Clark County Fire Code Amendments, 2024 edition (CCFC)*
- *NFPA Standard for Ovens and Furnaces, NFPA 86 2023 Edition*

PERMIT THRESHOLD:

PERMIT THRESHOLD	A PERMIT IS REQUIRED WHEN THE TOTAL INPUT EXCEEDS 150,000 BTU/HR OR HAS THE PRESENCE OF FLAMMABLE VOLTAILES OR COMBUSTIBLE MATERIAL PROCESSED OR HEATED IN THE FURNACE.
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PERMIT DURATION:

Industrial Oven permits are Operational Permits and are limited to a duration of one (1) year and shall be renewed annually. If any changes are made, revisions will need to be submitted.

SUBMITTAL REQUIREMENTS:

The requirements listed in this guide are not intended to be all inclusive, nor do they entail a limit to the extent of the information, etc., which may be necessary to properly evaluate the submitted plans and documents. Not all items may apply to your project. All documents shall be printed to .PDF file and uploaded as a PLAN.

1. PROJECT INFORMATION:

- Project name, address, and APN (Assessor's Parcel Number).
- Contractor's/Owner's contact information.
- Include type of Oven; Class A, B, C, D
- Provide the Manufacturer Make and Model and a copy of manufacturer's specification sheets for the oven including the engineering standard for the unit. All equipment shall be listed for its use.
- Ensure the data includes a list of all combustion, control and safety equipment

2. SITE PLAN: Provide site plan of the building showing the following locations:

- Show the location of oven including dimensions (length and width), ensure there is a minimum separation distance of 2.5ft for any unrelated stock /combustible materials from the oven.
- Show the fire extinguisher location(s) and type(s):
 - Provide fire extinguishers in accordance with IFC 906, depending on type of material utilized and class of fire hazards present.
 - Fire extinguishers shall be provided no closer than 15 ft no more than 50 ft

A fire protection system is **not** needed for the oven in addition to your Industrial Oven Permit when you can demonstrate or provide the following information for the oven;

- Demonstrate by calculation that the combustible concentration in the heating chamber **cannot exceed 25% of the Lower Flammability Limit (LFL)**. See CCFC sections 3006.1 and 3006.2
- Provide the Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS) for the powder being used in powder coating showing that has low or no volatiles.

3. If there are flammable/combustible volatile(s) present, the following information shall be provided;

- Identify the fire suppression system for the oven.
- Identify the ventilation for the oven.
 - Ensure separate exhaust system is provided.
 - Identify the system interlocks. The conveyors and fuel sources are to shut down if the ventilation system fails.
 - Identify the High Temperature Limiter Switch and state the maximum temperature set point. (This device will shut down the heat source if operating temperature exceeds the set point.)
- State the temperatures at combustible ceilings and floors; (to be less than 160°F/71°C.)
- Identify the fuel piping and source:
 - State the fuel source for oven and amount stored; if applicable.
 - Identify the shut-off valve locations: (ensure that the valve position has a permanent visual indicator of the Open and Closed positions. It shall be located remote from furnace and readily accessible.
 - Show that the fuel supply lines are within 6 feet of the oven served.

4. For Class A solvent atmosphere ovens: Provide a copy of the oven nameplate with the following design data:

- Solvent used
- The number of gallons(L) used per batch or per hour of solvent entering the oven
- The amount of volatiles per gallon.
- The required purge cycle time (seconds).
- The oven operating pressure.
- The exhaust blower rating in cubic feet per minute (cfm) for the number of gallons of solvent per hour or batch at the maximum operating temperature:
- For low-oxygen ovens: the maximum allowable oxygen concentration shall be included in place of the exhaust blower rating.

APPENDIX A:

FURNACE CLASS A: An oven or furnace that has heat utilization equipment operating at approximately atmospheric pressure wherein there is potential explosion or fire hazard that could be occasioned by the presence of flammable volatiles or combustible materials processed or heated in the furnace.

Note: such flammable volatiles or combustible materials can, for instance, originate 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 molecule rearrangements.

Potentially flammable materials, such as quench oil, waterborne finishes, cooling oil or cooking oils, that present a hazard are ventilated according to Class A standards.

FURNACE CLASS B: An oven or furnace that has heat utilization equipment operating at approximately atmospheric pressure wherein there is no flammable volatiles or combustible materials being heated

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

FURNACE CLASS D: An oven or furnace that is a pressure vessel that operated under a vacuum for all or part of the process cycle. It operates at temperatures from above ambient to over 5,000 deg F (2,760 deg C) and at pressure normally below atmospheric using any type of heating element. These furnaces can include the use of special processing atmosphere.

INSPECTION/TESTING/MAINTENANCE:

Safety devices shall be maintained in accordance with the manufacturer's instructions.

All safety interlocks/devices shall be tested for function at least annually for set point of temperature, pressure or flow safety devices.

Calibration of continuous vapor concentration high limit controllers shall be performed in accordance with the manufacturer's instructions and shall be performed at least once per month.

Pressure and explosion relief devices shall be visually inspected at least annually to ensure that they are unobstructed and properly labelled.

Valve seat leakage testing of safety shut-off valves and valve proving system; test frequency shall be at least annually

Set point of the pressure relief valve where installed shall be verified annually

Lubricated manual shut-off valves shall be lubricated and subsequently leak tested for valve closure at least annually.

Equipment isolation valves and emergency shut-off valves shall be exercised at least annually.

RECORD RETENTION: Records of inspection, testing and maintenance activities shall be retained for a period of 1 year or until the next inspection, testing or maintenance activity whichever is longer.

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