

About NFPA 86

NFPA 86 is the National Fire Protection Association standard for Ovens & Furnaces. It serves as the most widely referenced standard for industrial heat processing equipment and it identifies (4) classes of heat processing equipment.

- **Class A:** “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.”
- **Class B:** “Heat utilization equipment operating at approximately atmospheric pressure wherein there are no flammable volatiles or combustible materials being heated.”
- **Class C:** “Ovens or furnaces in which there is a potential hazard due to a flammable or other special atmosphere being used for treatment of the material in process.” This class also includes integral quench furnaces and molten salt bath furnaces.
- **Class D:** “Vacuum furnaces that operate at temperatures above ambient to over 5,000°F. and at pressures from vacuum to several atmospheres using any type of heating system.”
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Required Safety Features

- Nameplate - listing certain design data
- Redundant, excess temperature controller
- Air flow switch(s)
- Two fuel gas shutoff valves in addition to control valve
- High and low fuel gas pressure switches
- Flame supervision (combustion safeguard)
- Purge Timer: Controls purge requiring minimum exhaust of 4 air changes per unit volume (Fuel-fired & Class A)
- Furthermore, due to the nature of the material being heated in **Class A** ovens, NFPA 86 requires the following additional safety features:
 - **Safety Ventilation:** Adequate supply of fresh air to ensure that flammable vapor concentration remains below the LEL.
 - **Explosion Relief:** Means the oven shell design must permit unobstructed relief of internal pressure in the instance of an explosion inside the oven. The purpose of this is to concentrate pressure in one area in order to reduce shrapnel. The minimum requirement for this is 1 sq. ft. of relief area for every 15 cu. ft. of oven volume. Doors with explosion venting latches typically provide primary relief area.

