

NFPA 1 - Uniform Fire Code™ - 2003 Edition **Annex G Ozone Gas-Generating Equipment**

This annex is not a part of the requirements of this NFPA document unless specifically adopted by the jurisdiction.

G.1 Scope. Equipment having a maximum ozone-generating capacity of ½ lb (0.23 kg) or more over a 24-hour period shall be in accordance with this annex.

Exception: Ozone-generating equipment used in one and two family dwellings and lodging and rooming house occupancies.

G.2 Definitions. For the purpose of this annex, certain terms are defined as follows.

G.2.1 Ozone Generator. Equipment that causes the production of ozone.

G.3 Standards. The following standard is intended for use as a guide in the design, fabrication, testing and use of equipment regulated by this annex:

Standard 250, *Enclosures for Electrical Equipment*
National Electric Manufacturers Association
2101 L Street, N.W. Suite 300
Washington, DC 20037

G.4 Location.

G.4.1 General. Ozone generators shall be located in approved cabinets or ozone-generator rooms in accordance with Section G.4.

Exception: A generator within an approved pressure vessel need not be in a cabinet or ozone-generator room when located outside of buildings.

G.4.2 Cabinets. Ozone cabinets shall be constructed of approved materials compatible with ozone in accordance with nationally recognized standards. Cabinets shall display an approved sign stating: OZONE GAS GENERATOR - HIGHLY TOXIC - OXIDIZER. (See Section G.3.)

Cabinets shall be braced for seismic activity in accordance with the building code. Cabinets shall be mechanically ventilated with a minimum of six air changes per hour. Exhausted air shall be directed to a treatment system designed to reduce the discharge concentration of the gas to one half of the IDLH value at the point of discharge to the atmosphere. The average velocity of ventilation at makeup air openings with cabinet doors closed shall not be less than 200 ft per minute (1.02 m/s).

G.4.3 Ozone-Generator Rooms. Ozone-generator rooms shall be mechanically ventilated with a minimum of six air changes per hour. Exhausted air shall be directed to a treatment system designed to reduce the discharge concentration of gas to one half of the IDLH value at the point of discharge to the atmosphere or ozone-generator rooms shall be equipped with a continuous gas detection system which will shut off the generator and sound a local alarm when concentrations above the permissible exposure limit occur. Ozone-generator rooms shall not be normally occupied, and such rooms shall be kept free of combustible and hazardous material storage. Room access doors shall display an approved sign stating: OZONE GAS GENERATOR - HIGHLY TOXIC - OXIDIZER.

G.5 Piping, Valves, and Fittings.

G.5.1 General. Piping, valves, fittings and related components used to convey ozone shall be in accordance with Section G.5.

G.5.2 Secondary Containment. Secondary containment, such as double-walled piping or exhausted enclosures, shall be provided for piping, valves, fittings and related components. Secondary containment shall be capable of directing a sudden release to an approved treatment system.

Exception: Welded stainless steel piping and tubing.

G.5.3 Materials. Materials shall be compatible with ozone and shall be rated for the design operating pressures.

G.5.4 Identification. Piping shall be identified "Ozone Gas - Highly Toxic - Oxidizer."

G.6 Automatic Shutdown. Ozone generators shall be designed to automatically shut down under the following conditions:

- (1) When the dissolved ozone concentration in the water being treated is above saturation when measured at the point where the water is exposed to the atmosphere,
- (2) When the process using generated ozone is shut down,
- (3) Failure of the ventilation system for the cabinet or ozone generator room, or
- (4) Failure of the gas detection system.

G.7 Manual Shutdown. Manual shutdown controls shall be provided at the generator and, if in a room, within 10 ft (3 m) of the main exit or exit-access door.