§ 27.859 Heating systems.

(a) General. For each heating system that involves the passage of cabin air over, or close to, the exhaust manifold, there must be means to prevent carbon monoxide from entering any cabin or pilot compartment.

(b) Heat exchangers. Each heat exchanger must be—

(1) Of suitable materials;

(2) Adequately cooled under all conditions; and

(3) Easily disassembled for inspection.

(c) Combustion heater fire protection. Except for heaters which incorporate designs to prevent hazards in the event of fuel leakage in the heater fuel system, fire within the ventilating air passage, or any other heater malfunction, each heater zone must incorporate the fire protection features of the applicable requirements of §§27.1183, 27.1185, 27.1189, 27.1191, and be provided with—

(1) Approved, quick-acting fire detectors in numbers and locations ensuring prompt detection of fire in the heater region.

(2) Fire extinguisher systems that provide at least one adequate discharge to all areas of the heater region.

(3) Complete drainage of each part of each zone to minimize the hazards resulting from failure or malfunction of any component containing flammable fluids. The drainage means must be—

(i) Effective under conditions expected to prevail when drainage is needed; and

(ii) Arranged so that no discharged fluid will cause an additional fire hazard.

(4) Ventilation, arranged so that no discharged vapors will cause an additional fire hazard.

(d) Combustion air ducts. Each combustion air duct must be fireproof.

(1) No combustion air duct may restrict the prompt relief of any backfire that, if so restricted, could cause heater failure.

(2) Each combustion air duct may connect with the ventilating airstream unless flames from backfires or reverse burning cannot enter the ventilating airstream under any operating condition, including reverse flow or malfunction of the heater or its associated components.

(3) No combustion air duct may pass through any region having a flammable fluid system. Each combustion air duct must be fireproof for a distance great enough to prevent damage from backfiring or reverse flame propagation.

(4) Combustion air ducts. Each combustion air duct must be fireproof for a distance great enough to prevent damage from backfiring or reverse flame propagation.

(5) Combustion air ducts. Each combustion air duct must be fireproof for a distance great enough to prevent damage from backfiring or reverse flame propagation.