

undiluted flue products of oil or liquid-fuel burners must in no case be less than 3 percent nor more than 10 percent and shall be in conformance with applicable performance standards and shall be consistent with the listing and approval of the equipment.

- (B) The allowable limit of carbon monoxide must not exceed 0.04 percent.
- (C) The flue gas temperature of an oil appliance, as taken on the appliance side of the draft regulator, must not exceed applicable performance standards and shall be consistent with the listing and approvals of the equipment.
- (9) The oxygen figures may not apply when there is an approved oxygen trim system on the burner that is designed for that use, including a low oxygen interlock when approved by the Authority Having Jurisdiction.
- (10) (A) Supervised startup may be required to verify the safe operation of an oil or liquid-fuel burner and to provide documentation that operation is consistent with this code, listing, and approval. Supervised startup shall be required for all liquid fuel burners in categories 9(B), 9(C), and 9(D). Supervised startup requires that the liquid fuel burner must be tested in the presence of the mechanical official in a manner set forth by the Authority Having Jurisdiction before the installation is approved. Testing must include safety and operating controls, input, flue gas analysis, and venting. Flue gas must be tested at high, medium, and low fires. Provisions must be made in the system to allow a firing test in warm weather. After completion of the test of newly installed oil-or liquid-fuel burner equipment, as provided in this section, the installer shall file with the Authority Having Jurisdiction complete records of the test on a form approved by the Authority Having Jurisdiction. The tag stating the date of the test and the name of the tester must be attached to the appliance at the main valve.
- (B) Oil and liquid fuel burners of 1,000,000 Btu/h input or more require a supervised startup as in 10(A).
- (C) Installation of oxygen trim systems, modulating dampers, or other draft

control or combustion devices require a supervised startup as in 10(A).

- (D) All direct-fired heaters require a supervised startup as in 10(A).
- (11) The complete control diagram of the installation and suitable operating instructions must be supplied and posted by the installer of the appliance.

C.8.0 (Reserved)

C.9.0 Special Requirements Based on Btu/h Input.

- (A) Zero to 400,000 Btu/h per burner (0 to 2.8 gallons per hour):
 - (1) One (1) approved manual shutoff valve lever handle.
 - (2) One (1) approved fuel oil filter, installed on the supply piping.
 - (3) Approved automatic safety shutoff valve to provide 100 percent shutoff of all oil.
 - (4) A flame safeguard control capable of providing 100 percent shutoff in the event of flame failure. Flame failure response timing shall not exceed the control manufacturer's specifications.
 - (5) Two (2) controls, one operating and one high limit, activated by temperature or pressure, as appropriate.
 - (6) All burners relying on mechanical means to provide air for combustion must have actual proof-of-air interlock device.
 - (7) Installations with dampered combustion air openings must prove damper open position before trial for burner ignition.
 - (8) Vent dampers and flue dampers must be properly interlocked to prevent burner ignition unless safely open.
- (B) 400,001 to 999,999 Btu/h per burner (more than 2.8 to 7.0 gallons per hour)
 - (1) One (1) approved manual shutoff valve lever handle.
 - (2) One (1) approved fuel-oil filter, installed on the supply piping.