



U.S. CONSUMER PRODUCT SAFETY COMMISSION  
WASHINGTON, D.C. 20207

October 16, 2001

Mrs. Jennifer Henderson  
Standards Engineer  
Canadian Standards Association International  
8501 East Pleasant Valley Road  
Cleveland, Ohio 44131

**Re:** Results of the CPSC Staff's Furnace Combustion Sensor Testing

Dear Mrs. Henderson:

The staff of the U.S. Consumer Product Safety Commission (CPSC) is pleased to provide you with the results of our test program on combustion sensors for distribution to members of the ANSI Z21.47 Central Furnace Subcommittee and its Technical Working Group (TWG). At the May 23, 2001 TWG meeting staff informed TWG members that CPSC had begun a test program to evaluate the ability of combustion sensors to detect elevated concentrations of carbon monoxide (CO) in the flue passageways of a furnace and shut the furnace down. Enclosed you will find a report of the test program entitled "Furnace Combustion Sensor Test Results." The results indicate that it is technically feasible to use combustion sensors to monitor furnace CO levels and provide a shutoff signal to a furnace control system should the CO levels exceed a predetermined threshold.

CPSC staff believes that any degree of vent blockage or separation that allows combustion products to reach hazardous levels in the living space, instead of being vented to the outdoors, presents a serious safety risk to consumers from CO poisoning. To reduce these CO exposure risks, CPSC staff recommended in its letter to the furnace subcommittee dated November 14, 2000, that the following performance requirements be added to the furnace standard:

- (1) Require the furnace to shut off in the event the vent pipe becomes disconnected.
- (2) Require the furnace to shut off in the event the vent pipe becomes totally or partially blocked.

CPSC staff also recommended the following alternative performance requirements be added to the standard if technology was not available to accomplish (1) and (2):

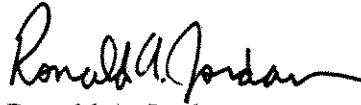
- (3) Require a means to prevent furnace CO emissions from exceeding the standard limits once installed in the field.
- (4) Require a means, once installed in the field, to shut down the furnace if CO emissions exceed the standard limits.

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The outcome of our test program indicates that the technical means to implement recommendations (3) and (4) is available. CPSC staff believes that the subcommittee should now begin the process of developing standards requirements to implement the safety proposals outlined above. I look forward to working with the subcommittee to this end.

These recommendations represent the position of the Commission staff. They have not been reviewed or accepted by the Commissioners. If you have any questions please call me at (301) 504-0508, extension 1295.

Sincerely,



Ronald A. Jordan  
Project Manager, Fire/Gas Codes & Standards  
Directorate for Engineering Sciences

cc:

Frank Stanonik, Gas Appliance Manufacturers Association  
Colin Church, Voluntary Standards Coordinator, CPSC

Enclosure