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

May 4, 1999

Ms. Cathy Rake
Project Manager
International Approval Services
8501 East Pleasant Valley Road
Cleveland, Ohio 44131

Subject: Standards Revision Proposal for Vented Gas Fireplaces, ANSI Z21.50/CSA 2.22, Vented Gas-Fired Space Heating Appliances, ANSI Z21.86/CSA 2.32, and Vented Gas Fireplace Heaters, ANSI Z21.88/CSA 2.33.

Dear Ms. Rake:

The U.S Consumer Product Safety Commission (CPSC), in cooperation with a gas fireplace manufacturer, recently recalled more than 22,000 gas fireplaces that used flexible vent pipes. The recall was in response to fire hazards created by unstable connections of the flexible vent pipes. The CPSC staff believes that the pertinent ANSI Standards should be amended to include a performance test to measure the integrity of vent systems incorporating flexible vent pipe.

In 1997, at least 1.5 million U.S. households had vented gas fireplaces. Data show that the sales of vented gas hearth products (fireplaces, logs, and inserts) have increased substantially in recent years and sales now exceed 500,000 units annually. The staff believes that many manufacturers and installers use or will use flexible vent pipe to install these products because of its ease of installation and cost.

The principal components of the recalled fireplace's vent system were a flexible metal vent pipe and metal termination assembly. The termination assembly consists of a flanged opening to accept the flexible vent pipe. The assembly mounts to an external wall to complete the venting system. Fire investigation reports involving the recalled units indicated that the points of fire origin corresponded to the location of the vent pipe termination assembly connection. It is important to note that even partial separations of the vent pipes resulted in fires. The CPSC staff observed the separation of the flexible vent pipe from the termination assembly in laboratory testing.

The gas fireplace recall illustrates that improper design and/or fastening of flexible vent pipe can result in a fire hazard. To minimize the risk of fires and injuries associated

with gas fireplaces and other appliances, which may use flexible vent pipe, provisions to ensure proper design and fastening of flexible vent pipe connections should be adopted.

The CPSC engineering staff recommends the following language as new text for the, "Part I. Construction", portions of ANSI Z21.50/CSA 2.2, Vented Gas Fireplaces, ANSI Z21.86/CSA 2.32, Vented Gas-Fired Space Heating Appliances, and ANSI Z21.88/CSA 2.33, Vented Gas Fireplace Heaters:

> "Manufacturers' supplied flexible vent pipe and fastener(s) or specified flexible vent pipe and fastener(s) and/or fastening technique(s) for flexible vent pipe connections shall not fail or result in loosening of a connection when installed per the manufacturer's instruction, and when a tensile load of 200 lbs is concentrically applied to the flexible vent pipe at the connection. This requirement shall be met under thermal conditions that match ambient, frigid, and full-load equilibrium temperatures."

The staff believes that the prescribed load test is imperative because of the recent field incidents, which led to the recall, and the probability for future incidents as suggested by the market trend. The staff believes that the prescribed load test can provide assurance for stable fastening of flexible vent pipe, irrespective of the manufacturers' fastening techniques or the final installation configuration. The 200 lb requirement reflects a factor of safety of "2" based on laboratory tests conducted by the staff. Furthermore, this recommendation is consistent with the mechanical integrity requirements for furnace vent systems, currently pending approval, in the ANSI Z21.47/CSA 2.3 Standard for Gas-Fired Central Furnaces.

Thank you for your consideration of this proposal. Should you have any questions or concerns, please contact Mr. Mohammed Khan with the Directorate for Engineering Sciences on (301) 504-0508, x1302.

The views expressed in this letter are those of the engineering staff and may not represent the official position of the Commission.

Very Truly Yours,

Mohammed Khan,
Mechanical Engineer
Directorate for Engineering
Sciences