MEETING LOG DIRECTORATE FOR ENGINEERING SCIENCES

SUBJECT: Meeting of the ANSI Z21.47 ANSI Z21/CGA Joint Central Furnace Subcommittee

PLACE: Clarion Hotel Cleveland Airport-West, Middleburg Heights, Ohio

MEETING DATE: September 14, 2000

LOG ENTRY SOURCE: Ronald A. Jordan RAJ

ENTRY DATE: September 19, 2000

COMMISSION ATTENDEES:

Ronald A. Jordan, ESEE
David Tucholski, LSME

NON-COMMISSION ATTENDEES:

See attached member attendee list

MEETING SUMMARY:

Staff attended the meeting of the Z21/CGA Joint Central Furnace Subcommittee to discuss the results of furnace emissions testing and to recommend changes to the furnace standard to address the risk of CO exposure when a furnace vent pipe is either disconnected, completely blocked or partially blocked. Following is a summary of that discussion.

- The test report, modeling report, and risk assessment for Furnace #1 were generally well received.
- The subcommittee requested that the Gas Appliance Manufacturers Association (GAMA) Furnace Engineering Committee and its Technical Working Group (TWG) review the test report and related reports for Furnaces #2-#5 and report back to the subcommittee with a recommendation. The two groups were going to meet during different time frames, but staff requested that they meet during the same week (i.e. the GAMA Furnace Engineering Committee would meet the day before the TWG) to avoid unnecessary delays in the standards development process. Staff also requested that these meetings be held before the spring time frame (e.g. May through June) in which the TWG normally meets. The subcommittee agreed to staff's request and stated that the meetings would be scheduled prior to the end of calendar year 2000 (e.g. in November or December 2000). Staff told the subcommittee that the remaining test and analysis reports for furnaces #2-#5 would be sent to the CSA staff for distribution within approximately one month (i.e. mid- to late October, 2000).
- The subcommittee discussed options available to prevent CO poisonings. Some initial options discussed included recommending a requirement that CO detectors be installed in homes; GAMA sponsored CO poising awareness programs; and installing non-adjustable gas regulators on the furnace to prevent overfire conditions. Staff reiterated the CPSC position that while the these

activities would be helpful in addressing the issue, more needed to be done to prevent the furnaces from becoming CO generators and leaking CO into the home when the vent is disconnected or blocked.

- Some attendees questioned the size of the CPSC test chamber and also the size of the house used in staff's indoor air model (1076 sq. ft). They felt that a 100,000 Btu/hr furnace would be oversized for both the test chamber and house. Staff replied that the chamber was appropriate for test purposes and that the modeling report describes how changing the volume of the house or the air exchange rate will effect the CO concentration.
- Some attendees asked why staff overfired Furnace #1 by 23 percent. Staff explained that the current ANSI Z21.47 standard requires certain tests be conducted at 12 percent over the manufacturer's specified rate. Staff stated that attempts have been to determine the rationale for the standard requirement for a 12 percent overfire rate test, but CSA was not able to locate the rationale statement for this provision. Staff stated that it could only assume that the input rate to the furnace could drift by up to 12 percent over the lifetime of the furnace. Staff further stated that since the furnace, as installed, overfired by 10 percent and that all installers may not "clock" the gas flow rate, the furnace was tested at 12 percent over the "as installed" rate. This resulted in an overfire rate of 23 percent.
- Some attendees asked at what point during testing did staff make observations about the burner flame shape and color. Staff replied that the flames were not visually observed during an actual test, since doing so would require removal of the furnace cover and interrupt closed chamber testing. Staff further replied that burner flames were therefore observed during non-tests, with the closet and chamber doors open and with the furnace cover removed. Also that this would be similar to how a furnace installer would check the flames during an installation.
- The attendees expressed surprise that all but one test furnace overfired when tested at the "as received" input rate. Staff explained that this input rate was based on a higher heating value of 1040 Btu/ft^3. Some attendees were also surprised by this heating value and stated that it was not typical for the entire US. However, a representative from BG&E stated that a heating value of 1040 Btu/ft3 was consistent with what he saw for this service area.
- Several attendees asked how closely staff followed the procedures in the ANSI Z21.47 standard for the blocked vent tests. Staff described the similarities and differences between its and the ANSI test procedures. One difference cited was that staff blocked the vent downstream of the flue collar, while ANSI specifies blockage at the flue collar. Staff also allowed for the depletion of oxygen around the furnace, while ANSI specifies that the tests are to be conducted in an atmosphere containing normal oxygen. Staff stated that we believe our blockage test more closely reflect what can occur in actual use.

cc:

Office of the Secretary
Colin Church
ESEE Chronological File

ATTENDANCE RECORD

CENTRAL FURNACE SUBCOMMITTEE

THURSDAY, SEPTEMBER 14, 2000

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