

Code Technology Committee

Area of Study – Carbon Monoxide Detectors (CO)

PRELIMINARY ANALYSIS

June 15, 2005

1) Review of Code Development History

Numerous code change proposals have been submitted that require the installation of CO detectors in new residential occupancies. These changes have been disapproved for reasons that include the following:

- There are concerns regarding the reliability of detection devices.
- There is insufficient reliable statistical data regarding the number of deaths that occur annually and are attributable to CO poisoning.
- The fact that most CO deaths occur in older homes which are not addressed in recent code change proposals.

2) Review of statistical information on the number of deaths and injuries as a result of not having CO detectors installed.

Statistical information shows that in 1982 there were 340 fatalities from carbon monoxide poisoning and 180 deaths in 1997. That is a decline of 47% from 1982 to 1997. Most deaths from carbon monoxide poisoning, however, are the result of negligence by the homeowner and occurred in older homes with poorly maintained equipment (i.e. furnaces, stoves). Recent examples of carbon monoxide poisoning include individuals who, after the hurricanes of 2004, brought generators into their homes and left them running without proper ventilation. Others include bringing charcoal grills, hibachis, and space heaters into the home without proper ventilation.

3) Review of factors associated with reported deaths and injuries.

a) Determine impact of fuel sources on potential CO hazard.

A 2001 report prepared by CPSC staff states that 76% of deaths in 1998 are attributed to heating systems using one of the major fossil fuels such as oil, coal, LPG or natural gas.

b) Assess impact on the deaf or hard of hearing.

We were unable to locate information that assesses the impact on the deaf or hard of hearing.

4) Are carbon monoxide detectors readily available?

Yes, carbon monoxide detectors are readily available.

a) Assess technology relative to people who are deaf or hard of hearing.

Current technology permits CO detectors to be monitored and provide signaling similar to what occurs with smoke detectors that are provided for use by the deaf or hard of hearing.

5) Is there a national standard for carbon monoxide detectors?

Yes, NFPA 704 references the installation of carbon monoxide detectors and UL 2034 Standard for Single and Multiple Station Carbon Monoxide Detectors is available.

6) What is the cost of installing carbon monoxide detectors?

The approximate cost of installing carbon monoxide detectors is \$80 for labor and \$50 per detector, with an average total cost of \$300 to \$500 per average single family home.

7) Develop an impact statement concerning the probable reduction of deaths and injuries resulting from a code requirement.

Based on the documents reviewed, there is insufficient information to perform a meaningful analysis of the probable reduction in deaths and injuries.

8) Develop code requirements if necessary.

References

Carlson, S., *Non-Fire Carbon Monoxide Deaths Associated with the Use of Consumer Products 2001 Annual Estimates*, (Washington, D.C.: Consumer Products Safety Commission, 2004).

2000/04 Code Development Cycles Proposed Changes to the International Codes, (Country Club Hills, IL: International Code Council, 2000/2004)

Use of Carbon Monoxide Alarms to Prevent Poisonings During a Power Outage – North Carolina, December 2002, vol. 291 NO. 14 (U.S.A.: Journal of the American Medical Association, 2004)

National Fire Codes, Volume 14, NFPA 720, Recommended Practice for the Installation of Household Carbon Monoxide (CO) Warning Equipment, (Quincy, MA: National Fire Protection Association, 2003)

CDC. *Unintentional—Fire-Related Carbon Monoxide Exposures—United States, 2001-2003*, MMWR January 2005;54(02):36-39