



**GEORGIA DEPARTMENT OF COMMUNITY AFFAIRS (DCA)
STATE CODES ADVISORY COMMITTEE (SCAC)
CARBON MONOXIDE DETECTORS FOR SCHOOLS TASK FORCE**

Important Discussion Points about Carbon Monoxide and Schools

1. What happened to make carbon monoxide in schools an important issue for the State?

On December 3, 2012, approximately 40 students and staff of the Finch Elementary School in Atlanta were taken to area hospitals due to a carbon monoxide (CO) gas leak which occurred in the school's boiler room. The effected students and faculty were either treated at the scene or treated at emergency rooms and then released. The symptoms of the affected students and staff included headaches, dizziness and drowsiness. An investigation by the Georgia Office of Insurance and Safety Fire Commissioner determined the incident was caused by human error.

2. Why did the Georgia Department of Community Affairs (DCA) get involved in this?

After the incident at Finch Elementary School, Governor Nathan Deal asked DCA to look into the question of whether school facilities should have carbon monoxide detection systems and whether any changes to Georgia's building codes were needed. DCA reviews, amends and adopts various State Minimum Standard Codes, such as building, mechanical and plumbing codes. The Office of Insurance and Safety Fire Commissioner reviews, amends and adopts various fire and life safety standards. Both agencies work closely together to coordinate the adoption of these codes and standards.

3. What did DCA do to address the issue of carbon monoxide in school facilities?

As Governor Deal said after the incident, the safety of our school children and school personnel is paramount. DCA's Office of Codes, Research and Surveys worked with the Georgia Department of Education and the Georgia Insurance and Safety Fire Commissioner to issue a statewide advisory on carbon monoxide detectors on December 17th. The advisory addressed the concerns of the public and provided guidance for local school districts that wished to install CO detection equipment immediately. In January, 2013, DCA's State Codes Advisory Committee, a standing body appointed by the DCA commissioner, voted to create a special task force to study the issue of carbon monoxide in schools and make recommendations. The task force began work in January and met five times to complete its charge from the State Codes Advisory Committee as requested by Governor Deal.

4. What is the task force recommending?

The task force issued a set of voluntary guidelines for schools that strongly recommend an assessment of each new and existing school to identify and evaluate potential sources of carbon monoxide. The final report of the task force also contains



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detailed information about the risk of carbon monoxide exposure and the installation of carbon monoxide detectors to assist school officials in making decisions about whether detection systems should be installed. But the task force did not recommend any changes to Georgia's current building codes to mandate the use of carbon monoxide detectors in schools.

5. Were carbon monoxide detectors required by state law or codes to be in schools at the time of the Finch Elementary School incident?

No. There are no mandatory requirements in the current state law or in the state building and fire codes for CO detectors to be installed in schools. However, CO detectors are required in one and two family homes which have bedrooms used for sleeping purposes. On January 1, 2014, CO detection will be required in Georgia hotels, motels, dormitories, apartments, hospitals, nursing homes, assisted living facilities, prisons, correctional centers, detention centers, adult and child care centers and personal care homes that contain sleeping areas. This new requirement will apply to the construction of all new facilities (see list above) and any existing facilities that have alterations, additions, repairs or renovations.

6. Carbon monoxide is a health hazard, so why shouldn't Georgia have laws requiring CO detectors in schools?

The task force determined from its research that the chief danger from carbon monoxide occurs in buildings where people sleep. That's why in 2009 DCA amended the current State Minimum Standard Residential One and Two Family Dwelling Code to require installation of carbon monoxide alarms in all one and two family homes. And, CO detection will also be required by the State Building and Fire Codes in other facilities where people sleep as of Jan. 1, 2014 (see # 5).

The task force found that a mandate to require carbon monoxide detectors in all of Georgia's 8,000 plus schools could be very expensive and might not always be the best solution to the problem. Many newer schools, for instance, have electric heating systems and appliances and therefore have very limited exposure to carbon monoxide gas, which is produced by the incomplete combustion of a carbon-based fuel such as oil, gasoline or natural gas. Also, installation of carbon monoxide detection systems requires an ongoing and extensive maintenance and replacement schedule in order to be effective.

The task force determined that a school-by-school assessment of the need for carbon monoxide detectors by local officials combined with good training for school staff is more beneficial than a state mandate. Therefore, the task force recommended a set of voluntary guidelines for local school districts to use for assessing the need for installation of carbon monoxide detection in new and existing schools. The voluntary guidelines also provide important technical guidance for



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those schools districts that choose to buy and install detection systems for their schools.

7. Where does CO gas occur in schools?

Potential CO sources inside schools include boilers, water heaters and furnaces, generators (permanent and portable), natural gas and propane fired appliances, such as cooking appliances, gas dryers, Bunsen burners in chemistry labs, portable heating equipment and gas powered floor cleaners. The task force also identified outside sources of carbon monoxide such as lawn mowers and weed eaters, buses and cars idling near open exterior doors and windows or intake vents, and even portable gas cooking grills. The carbon monoxide emitted by these outside sources can be drawn into schools through ventilation ducts or other openings.

8. Why wouldn't it be a good idea to install in school classrooms residential carbon monoxide alarms that you can buy in local hardware stores?

There is an important difference between commercial detectors and residential type alarms. "Residential type" alarms are intended for installation and use in one and two family homes and are typically available at your local hardware store. Because "residential type" alarms are intended for homes where people sleep, they are pre-set to go off at lower CO concentrations than are recommended for commercial or institutional spaces like schools.

"Commercial type" detectors are designed to detect CO gas at higher concentrations or volumes. Some units are wired into a remote alarm control panel and send signals warning of a high CO concentration in a specific location or failure of the unit. These "commercial type" detectors are considered more reliable and effective than the "residential type" alarms for commercial or institutional buildings.

When CO detection equipment is voluntarily installed in schools by local school districts, the current State Minimum Fire Safety Standards in Georgia already require that "commercial type" detectors must be used in commercial applications, such as schools. Commercial detectors are not typically sold in local hardware stores or retail outlets. Commercial detection equipment should be obtained from commercial CO detection equipment suppliers/sources and should be installed by qualified persons.

9. How much does it cost to install CO detectors and systems in schools?

The design of each of Georgia's 8,000 plus schools is unique so there was no single specific price estimate that the task force could use to accurately determine a cost-per-square foot basis for installation of carbon monoxide detectors. Many factors, such as the number of gas appliances and fuel burning boilers, water heaters and



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furnaces, existing alarm systems and outside ventilation, go into the determination of whether CO detection and warning equipment are warranted in a specific school.

Through case-studies, the task force determined that installing stand-alone CO detectors that are not connected to an existing fire alarm control panel would be significantly less expensive than installing a system of interconnected CO detectors that are monitored by a fire alarm control panel. The estimated cost to install stand-alone CO detectors in existing school buildings is \$168 per unit versus \$375 per unit for system-monitored CO detectors connected to a control panel. However, if a school chooses to buy stand-alone detectors, the units should meet the appropriate specifications for school use and they must be properly installed and routinely tested to remain effective.

10. Why did it take DCA eight months to complete the Task Force recommendations?

In December, 2012, Governor Deal instructed DCA to investigate the hazard carbon monoxide poses in schools. This complicated issue required careful consultation with several state agencies and with stakeholder groups such as school officials, building and fire officials, design professionals, the gas and electric industry, as well as the construction industry and trades associations, to reach comprehensive recommendations that are right for Georgia. Participation on the task force was strictly voluntary and no funding was available to assist the group with their work.

The Carbon Monoxide Task Force for CO Detectors for Schools met five times from January through June, 2013, to research and report back on all the different dimensions of the issue. They formed nine sub-committees to review specific topics that the group identified for research and discussion. The task force heard presentations and compiled several technical reports, articles and supporting documentation regarding the assessment, installation, testing and maintenance, estimated costs, and required educational training needed to solve the problem of providing carbon monoxide detection in schools. Typically, a group researching an issue of this magnitude, importance and complexity would need 12 to 18 months to complete its mission. However, this task force completed its work in less than eight months so its recommendations would be available before the start of the new school year.

11. Are there any applicable code standards that address CO detectors?

Yes. The state currently has applicable adopted code standards that address CO detection. NFPA 720 *Standard for Installation of Carbon Monoxide (CO) Detection and Warning Equipment*, UL 2034 *Single and Multiple Station Carbon Monoxide*



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Alarms and UL 2075 Gas and Vapor Detectors and Sensors are all Georgia approved standards that address the installation of CO detectors.

12. Will anyone enforce the state's recommendation for CO detectors?

The task force recommended a set of voluntary guidelines for use by local schools. Local school districts and the Georgia Department of Education have jurisdiction and authority on this issue.

13. Where can I obtain a copy of the voluntary guidelines and final report?

<http://www.dca.ga.gov/development/constructioncodes/programs/CarbonMonoxide.asp>

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