2022-2023 SCHOOL YEAR EDITION

AUGUST 1, 2022 – JULY 31, 2023

U.S.-BASED CAMPUS REPORT CARD

CarbonMonoxideInSchools.org

Message from our founder

For years, carbon monoxide (CO) awareness and safety campaigns have focused their language around residential properties, only recently moving into conversations regarding recreation and travel.

This has left an incredible gap in conversation and understanding about the risk of carbon monoxide presence in commercial properties – particularly in schools – where people believe they are safe and being cared.

Whether a CO incident occurs on the property, or in the property, the occupants are ultimately in the care of the campus. And campuses often take care of or are visited by our most vulnerable populations – children, immunocompromised, and elderly.

CO Safe Schools speaks specifically to the issue of carbon monoxide on campuses of daycares, K-12 schools, and college and university campuses. Our goal is to create CO-safe campuses nationwide. Welcome, watchdogs.

Nikki James Gellner

Thank you to the following organizations who invited us to discuss campus CO safety with their audience this year.

– CBS Evening News (Nat'l)
– Philadelphia CBS
– CCFS Webinar
– NFPA Life Safety Conf
– NCOAA's CO Safety Summit
– NASWA Vets (DC)

How to Read This Report Card

It is the goal of CO Safe Schools to bring awareness and education to not only the general public but also to stakeholders engaged in creating safer campus environments including journalists, public servants, first responders, school administrators, teachers, and parents.

As CO Safe Schools uses press-reporting to compile data, we are limited by what's reported from various sources to the amount of data we are able to accurately collect. Below are the key data points.

DATE – The date of the incident. Dates give us an indication of what season the carbon monoxide event takes place on a campus.

REGION – The region of the U.S. where the carbon monoxide incident occurs. This can shed light on where additional education, preparedness, or regulations may need to be evaluated for the protection of health and life safety.

COMMUNITY TYPE – Will indicate whether the community is urban (access to life and safety resources), or rural (limited access to life and safety resources).

CAMPUS TYPE – This will indicate the primary purpose of the campus – and give an indication as to the age groups affected by the carbon monoxide incident.

OCCUPANCY TYPE – This will indicate where the carbon monoxide incident occurred on the property, and what that particular space is used for (based on Building Code).

DETECTION PROVIDED – This will indicate whether or not campus-provided detection devices were on site at the time of the carbon monoxide incident. It will also indicate, based on reporting, whether or not the alarm alerted occupants.

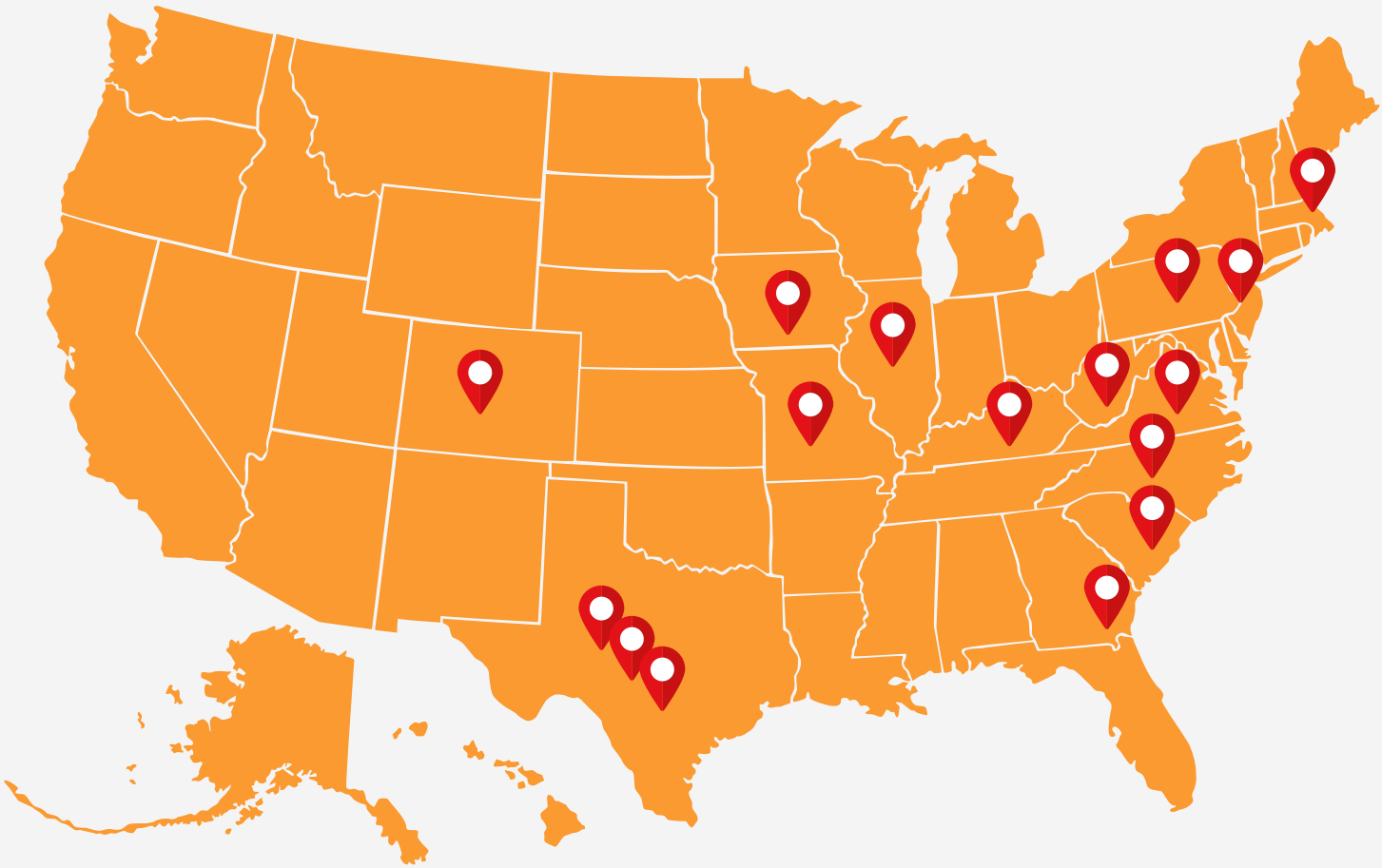
INJURIES – This will indicate the number of people injured and requiring medical treatment, because of the carbon monoxide incident. It will not include the total number of evacuated or evaluated on-site.

SOURCE INDICATED – This will indicate whether the source of the carbon monoxide exposure was discovered immediately or following the carbon monoxide incident, and if that information was reported to the public.

PPM REPORTED – Carbon monoxide accumulation is measured in parts per million (ppm). Reporting the highest known level of ppm recorded by gas meters or detection devices allows the public to know the level of exposure the occupants were subjected to. PPM should be communicated to all occupants, and first responders, as well as reported to the public for every carbon monoxide incident. For more information on how ppm level impacts physical and mental health, see the health impact chart included in this report.

2022-2023 SCHOOL YEAR

US-BASED, PRESS-REPORTED INCIDENTS



09/01/22 – HANFORD DOLE ELEMENTARY*

10/11/22 – NAVARRO COLLEGE

10/11/22 – IRMA RUIZ ELEMENTARY

10/19/22 – ALTON ISD

10/19/22 – FORT LEWIS COLLEGE*

10/21/22 – CLIFTON HIGH SCHOOL

10/25/22 – GAULEY RIVER ELEMENTARY**

10/28/22 – MOLDING FROM THE START

11/16/22 – CLEMSON UNIVERSITY

11/22/22 – CHILDSERVE DAYCARE

01/03/23 – HAPPY SMILES DAYCARE

01/11/23 – GAULEY RIVER ELEMENTARY**

02/01/23 – BOWLING GREEN JUNIOR HIGH

02/21/23 – LORD BOTETOURT HIGH

02/23/23 – OLTON ISD

03/24/23 – BILLERICA MEMORIAL HIGH

03/30/23 – LONGFELLOW ELEMENTARY

* HAPPENED IN PRIVATE VEHICLE OR SCHOOL BUS
** SAME SCHOOL, MULTIPLE INCIDENTS

A BREAKDOWN OF THE DATA

CO Safe Schools uses press-reported incidents as the primary source of data collection. We audit incidents regularly to see if new information has or changes have been reported regarding sources, injuries, etc. as many times they are not available through spot- and breaking news. We believe local journalists play a major role in educating the public and serving as watchdogs of the community when it comes to carbon monoxide incidents in schools, and it's our goal to partner with media organizations to make reporting better and more accurate for the public. The data below represents U.S. campuses, and the reporting period is August 1, 2022 – July 31, 2023.

REGION

7 – Southeast (KY, GA, NC, SC, VA, WV)
3 – Midwest (IA, IL, MO)
3 – Northeast (MA, NJ, PA)
3 – Southwest (TX)
1 – West (CO)

COMMUNITY TYPE

14 – Urban/Suburban
3 – Rural

CAMPUS TYPE

6 – Elementary school
4 – College/University
3 – Daycares
3 – Junior High/High School
1 – K-12

OCCUPANCY TYPE

9 – Educational
3 – Daycare
2 – Public/Private Transportation
1 – Assembly
1 – Residential
1 – Business

DETECTION PROVIDED

9 – No
3 – Yes, alerted
3 – Yes, but did not alert
2 – Not reported

INJURIES/FATALITIES

24 Adults taken to hospital
50 Students taken to hospital
2 Student fatalities* (in private vehicle on campus)

SOURCE INDICATED

7 – Faulty appliance (HVAC, kitchen, cleaning)
5 – Improper ventilation (human or install error)
3 – Unknown source/Not reported
2 – Inadequate ventilation (random/nature)

PRESS REPORTED PPM

12 – Did not report
2 – 70 to 100 ppm measured
2 – 500 to 750 ppm measured
1 – 2000 ppm measured (maxed out)

Take steps to become CO safe

Where do you go from here? Our Campus Report Cards are not just about looking back, but also looking forward.

While our report cards will be provided annually (beginning with the 2022-2023 School Year), an ongoing incident database for US-based school exposures is maintained at: CarbonMonoxideInSchools.org/victims

01

Get educated about modern CO sources and audit the campus.

Visit CarbonMonoxideInSchools.org for actionable resources, fast facts, and real-time reporting on campus CO safety. Use our CO Risk On Your Campus guide to evaluate the current level of risk in and around your buildings. Hang the Health Effects Chart on the next page in your break area.

02

Install appropriate level of carbon monoxide protection.

Carbon monoxide detection devices are not one-size-fits-all. Work with dedicated advisors to make sure you're equipping your campus with the right kind of detection in the right places. Just because there might not be a requirement, doesn't mean you shouldn't do it.

03

Make a plan and share it with all occupants.

Carbon monoxide incidents are not shelter-in-place events – they require immediate evacuation of occupants into fresh air. Make sure staff and occupants have proper training to safely, efficiently, and effectively get out of the building first and notify responders afterward.

04

Require partners to be safe, too.

Many carbon monoxide events occur due to the arrival of temporary, portable, gas-powered devices on campus. If work is being done on or around your campus property (like construction or landscaping), require vendors to use portable CO devices while conducting work.

CARBON MONOXIDE PPM LEVELS AND THEIR IMPACT TO HEALTH

Carbon monoxide, or CO, interferes with the ability of red blood cells to carry oxygen to vital organs. CO is measured in Parts Per Million (PPM). CO alarms will alert differently based on product & manufacturer.

0 – 9 PPM	No health effects. This PPM level is the typical level of CO found in rural, indoor and minimal-traffic city areas.
10 – 20 PPM	Cardiovascular and mental effects in vulnerable populations (children, elderly, immunocompromised); chronic exposure at this level: unexplained headaches, nausea problems in otherwise healthy adults.
35 PPM	Flu like symptoms in vulnerable populations. An Increase in cardiac and/or respiratory complaints in healthy adults with consistent, chronic exposure. *This PPM level would have to be sustained for 10 hours to set off a basic UL standard, single-station CO alarm properly installed in the area of exposure.*
50 PPM	Headache and dizziness after 8 hours of exposure at this level in healthy adults; Aggravation of symptoms of existing conditions. *This PPM level would have to be sustained for 8 hours to set off a basic UL standard, single-station CO alarm properly installed in the area of exposure.*
70 PPM	Flu-like symptoms for healthy adults including headache, nausea, dizziness, fatigue. *This PPM level would have to be sustained for 1-4 hours to set off a basic UL standard, single-station CO alarm properly installed in the area of exposure.*
150 PPM	Elevated symptoms in vulnerable populations. In healthy adults, impaired mental function after 2-6 hours of exposure at this level. *This PPM level would have to be sustained for 10 - 50 minutes to set off a basic UL standard, single station CO alarm properly installed in the area of exposure.*
400 PPM	Hallucinations, dementia, and serious headaches within 1-2 hours; life threatening after 3 hours. *This PPM level would have to be sustained 4-15 minutes to set off a basic UL standard, single station CO alarm properly installed in the area of exposure.*
800 PPM	Dizziness, nausea and convulsions within 45 minutes. Loss of consciousness within 2 hours. Death within 2-3 hours for healthy adult.
1,600 PPM	Healthy adult would experience nausea, dizziness and headaches in less than 20 minutes; death would occur within 1 hour. *Smoldering wood fires, malfunctioning furnaces, water heaters, and kitchen ranges typically produce concentrations exceeding 1,600 ppm.*
3,200 PPM	Headache, dizziness and nausea within 5-20 minutes. Quickly impaired thinking. Death within 30 minutes.
6,400 PPM	Headache, dizziness and nausea within 1-2 minutes. Thinking impaired before response possible. Death within 10-15 minutes.

Frequently Asked Questions

DO BUILDINGS NEED TO HAVE A GAS-FIRED SOURCE TO HAVE A CARBON MONOXIDE ISSUE?

A building **does not** need a fuel-fired system to have a CO exposure incident. While boilers, furnaces, and HVAC systems are the #1 source of CO incidents in schools, they're not the only source. A growing percentage of emergency CO-related incidents in schools are caused by things like snow- or nest-blocked vents, propane-powered cleaning equipment, idling vehicles, and using gas-powered equipment in improperly ventilated areas.

ARE ALL STAFF MEMBERS OF CAMPUSES REQUIRED TO HAVE CO SAFETY TRAINING?

At this time, most educators and faculty nationwide are not required to complete any kind of carbon monoxide awareness, prevention, or situational training. If there is no installed detection, or if detection devices are malfunctioning, front-line staff such as teachers and maintenance teams ARE the only ones who can recognize a CO issue as it's occurring. Teachers will see changes in children's typical behavior and will be the first to see a "group" symptom emerging and where it's happening. It is imperative they know what they're looking for, how to respond, and who to alert when it comes to CO.

IS THERE A FEDERAL LAW REQUIRING CARBON MONOXIDE DETECTION IN SCHOOLS?

Due to current state and federal laws, as well as non-uniform building codes being adopted or enforced across all states, a majority of schools throughout the U.S. do not have CO detection on site because they're not required to – particularly in existing, older campus buildings, assembly areas, or structures without CO-producing equipment installed. It has been proven that if campuses aren't required to do it, they often don't. Budget constraints, aging buildings and equipment, and increasing demands of curriculum and training often mean that the CO conversation is left to maintenance personnel and risk managers. However, many staff, parents, and community members who occupy the building are under the impression their health and life safety are being protected – when it's not.

SHOULD I JUST ORDER SOME CARBON MONOXIDE DETECTORS OFF AMAZON?

Not all detection devices are created equal, and currently, most building code recommendations are the bare minimum for life safety. You can still suffer short-term and long-term health issues if you choose detection that isn't designed for the specific needs of your school and space. There are key differences between carbon monoxide monitors, stand-alone alarms, and integrated detection systems. When it comes to children's and life safety, you want to invest in the devices that will protect their development and health – not just save their lives. What a school should be using for CO protection based on its unique size, age, systems, and layout is often far greater than the minimum recommendations for safety made by code councils, local codes, or state law. It is imperative to understand the unique needs of your school and its occupants – and install detection devices accordingly.

DOES CARBON MONOXIDE EXPOSURE AFFECT EVERYONE THE SAME?

Children are at higher risk than healthy adults when exposed to carbon monoxide and experience more long-term side effects. Due to their age and current stage of development, children will respond to CO exposure differently than the adults in the room with them. Children have a higher metabolism and breathe faster, meaning they will be inhaling and distributing carbon monoxide more often. Their developing minds are still in the growth stage, and exposure to poisonous toxins can change neurological response and organ development in the long term. Younger children, in particular, are unable to communicate the physical issues being experienced, and it is not abnormal for them to appear drowsy and fussy.

CO SAFE SCHOOLS

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