SYSTEM SENSOR®

FALL 2006

LifeSafety MAGAZINE

Information on life safety from the leader in fire detection

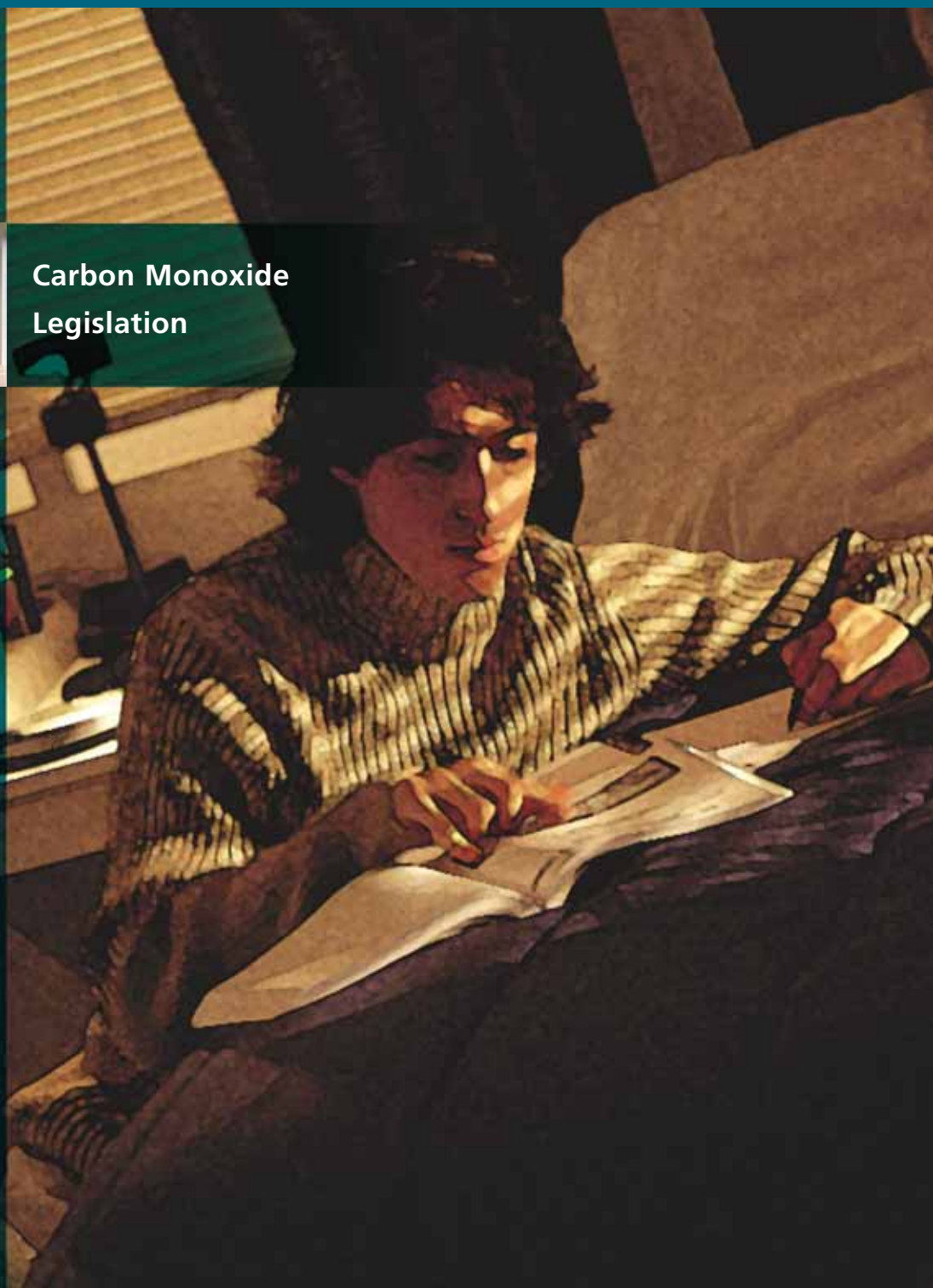
Carbon Monoxide Tragedies Grow Life-Safety Market

Carbon Monoxide Legislation

Rapid Build-Up and Design Flexibility Are Essential for Retail Life-Safety Systems

Top 5 Things to Know About CO

Sound Design Powers Flashy New SpectrAlert® Advance



Where's the Fire?

There isn't one. It's a false alarm that just cost your retail operation thousands of dollars in lost productivity and sales. The reason? Faulty detection.

But, you can keep your operation humming with System Sensor products that are designed to minimize false alarms.

System Sensor has a solution for all your retail needs within our complete fire- and life-safety lines:

- Conventional and intelligent smoke detection
- Directional sound egress technology
- Audible/visible notification
- HVAC system monitoring
- Sprinkler system monitoring

For more information on System Sensor's product lines, call 800-SENSOR2 or visit www.systemsensor.com/retail. You'll receive an E•DOCS CD ROM, a comprehensive resource for technical information, and a FREE subscription to *LifeSafety*, System Sensor's quarterly magazine on the industry's most innovative technology and with expert views on building safety.

SYSTEM SENSOR®

advanced ideas. advanced solutions.™

800/736-7672

www.systemsensor.com

Improving the Industry Standard

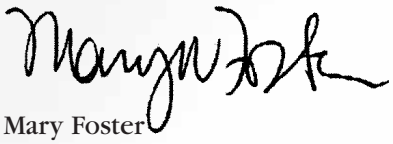
Three years ago, System Sensor engineers started with a clean slate to redesign our flagship audible/visible (A/V) product line. The goal was to develop notification appliances with features that echoed the voice of the customer. Industry leaders unanimously requested A/V devices that would be easier to specify, configure and install.

System Sensor's previous generation of A/V devices, SpectrAlert®, is a popular choice among fire professionals because the current draw is lower than most in the industry. But, we were determined to raise the bar higher, using the previous gold standard as the starting block.

Today, we are proud to introduce SpectrAlert® Advance, the culmination of our research and design efforts. Among other sophisticated features, SpectrAlert Advance offers a plug-in design for pre-wiring mounting plates; eleven candela settings for selecting the ideal light output for each installation; and shorting springs for checking wiring continuity before installing devices. SpectrAlert Advance indoor and outdoor, wall and ceiling devices incorporate technology that gives our customers the capacity to do more business with the same resources.

While product advances are quite common in any industry, most are incremental changes based on the same platform. What System Sensor did, however, was against the grain – we've reinvested in an already mature, industry-leading product line to make it even better.

This is the type of commitment System Sensor makes to its customers.



Mary Foster
Director of Marketing
Audible/Visible Business Unit

CONTENTS

COVER STORY

Departments

SYSTEM SENSOR
LifeSafety MAGAZINE

Your thoughts and comments are welcome at **info@systemsensor.com**.
For more information on System Sensor products, call 800-736-7672 or visit **www.systemsensor.com**.

Carbon Monoxide Tragedies Grow Life-Safety Market

More state and local municipalities are now requiring CO detectors.

More than 100 teens and adults were rushed from a Roanoke College dormitory in Salem, Va. to local hospitals on July 14, 2006, where they were treated for carbon monoxide (CO) poisoning. The victims were staying at the dormitories while participating in either a conference or a six-week college prep program when CO started rising from the natural gas-powered water heater in the basement. A retired pastor attending the conference died in the dormitory, although the cause of his death is still under investigation. The dormitories did not have CO detectors.

CO is a colorless, odorless, tasteless and highly toxic gas that strikes without warning. Known as the "silent killer," it affects thousands of unsuspecting, unprepared people every year.

Why the sudden stir about CO?

As technology advances, more and more people are buying CO-generating devices. Walking through residential or commercial dwellings, you are bound to find a flame-fueled device of some sort, including vehicles, charcoal grills, clothes dryers, engine-powered tools, fireplaces, gas/hot water heaters, gas/oil furnaces, gas space heaters, gas/wood-burning ovens/ranges, lanterns, lawnmowers, pilot lights and portable generators — to name a few. However, with any appliance, old or new, there is risk of malfunctioning parts, improper installation or simply a buildup of dust and dirt to cause ventilation problems. These unanticipated problems can cause CO to kill without warning.

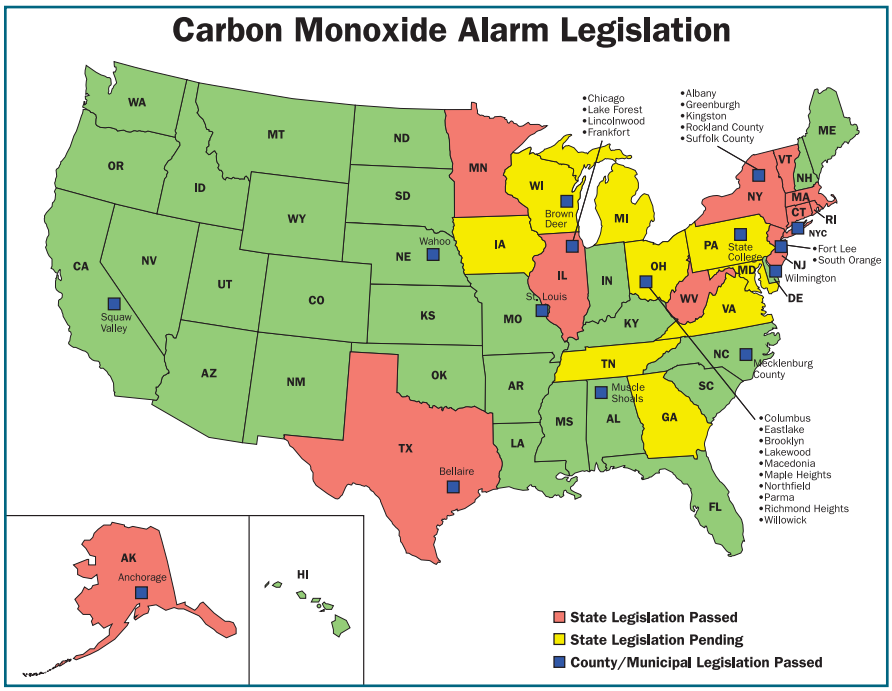
What are states doing about it?

As tragedies, like Roanoke's, spread and CO research continues to educate the world on the dangers of carbon monoxide, states and municipalities are passing legislation requiring CO detectors.

According to a 2006 NEMA[1] report, 10 states have already enacted state-wide CO legislation: Alaska; Connecticut; Massachusetts; New Jersey; New York; Rhode Island; Utah (building code provision); Vermont; West Virginia; and Texas (day care centers and group homes). Subsequent press release updates include Illinois and Minnesota.

According to the same report, many local jurisdictions throughout the following 16 states also require CO detection: Alaska; Alabama; Delaware; Illinois; Iowa; Kentucky; Massachusetts; Michigan; Missouri; Nebraska; New York; North Carolina; New Jersey; Ohio; Texas; and Wisconsin. Several other states and municipalities have legislation pending. For the most recent update, visit www.systemsensor.com/CO.

With legislation on the rise, check with the local Authority



Having Jurisdiction for local CO detector requirements.

How else can I protect myself from CO?

Although the most reliable protection against CO is via monitored CO detectors, the U.S. Environmental Protection Agency[2] offers tactics to help avoid CO leaks, including:

- Have your fuel-burning appliances inspected by a trained professional at the beginning of every heating season. Make certain that the flues and chimneys are connected, in good condition and not blocked.
- Choose appliances that vent their fumes to the outside whenever possible, have them properly installed, and maintain them according to manufacturers' instructions.
- Read and follow all instructions that accompany any fuel-burning device. If you cannot avoid using an unvented gas or kerosene space heater, carefully follow the cautions that come with the device. Use the proper fuel and keep doors to the rest of the house open. Crack a window to ensure enough air for ventilation and proper fuel-burning.
- Don't idle the car in a garage — even if the garage door to the outside is open. Fumes can build up quickly in the garage and living area of the home.
- Don't use a gas oven to heat your home, even for a short time.
- Don't use a charcoal grill indoors, even in a fireplace.
- Don't sleep in any room with an unvented gas or kerosene space heater.
- Don't use gasoline-powered engines (mowers, weed trimmers, snow blowers, chain saws, small engines or generators) in enclosed spaces. LS

1. The National Electrical Manufacturers Association (NEMA), "Recommended Policies: State and Local Legislation and Ordinances for Carbon Monoxide Life Safety Devices," April 2006. http://www.nema.org/prod/elec/sig/upload/carbonmonoxidepolicy2006.doc.

2. The U.S. Environmental Protection Agency (EPA), Indoor Environments Division (6607J) Office of Air and Radiation, "Protect Your Family and Yourself from Carbon Monoxide Poisoning," October 1996. http://www.epa.gov/iaq/pubs/coftsbt.html#Prevention%20is%20the%20Key%20to%20Avoiding%20Carbon%20Monoxide%20Poisoning.

System monitoring provides extra protection and ease of mind when alone, not home or unable to respond.

At 1 a.m., Geneva, Ill., residents Scott and Lisa Palese turned in for the night. They couldn't smell, taste or see the carbon monoxide that was pouring out of their basement furnace, up through their laundry chute and into their second-story bedroom.

"We turned off our (battery powered) carbon monoxide detector about a month prior because it continually beeped," Lisa said. However, before doing so, the gas company and fire department confirmed the Palese's home did not contain carbon monoxide, and the manufacturer's customer service department failed to find a reason for the malfunctioning detector.

"Everybody (the Palese's three children, ages six, four and two) was asleep already, except for us, and we started to doze off — naturally," Lisa said. "And I said (to Scott), "Gosh, this is weird that we both have a headache. Do we have that carbon monoxide detector anywhere?"

When the Palese's put the battery back in the detector, the beeping was louder and more frequent than when it was malfunctioning. After opening the windows and calling the fire department, the Palese family was taken to the hospital and treated for carbon monoxide poisoning.

"The firemen told us if we would have just slept right through it (their headaches), we probably would not have woken in the morning," Lisa said. "That's a scary thought."

Rapid Build-Up and Design Flexibility Are Essential for Retail Life-Safety Systems

Kirsten Paoletti, fire protection and code consultant at RobsonWoese Inc Consulting Engineers, gives insight into retail life-safety design. Previously with the National Fire Protection Association (NFPA), Ms. Paoletti continues to instruct NFPA seminars for architects, engineers, facilities and safety program managers.

Q. How do retail facilities, in terms of life safety, differ from other types of facilities?

A. There is rapid initial build-up. Everything is done to the building shell and the common space in a short amount of time. In covered-mall buildings, you must be able to activate and commission all building systems, including the fire-protection and life-safety systems, outside of the tenant spaces and then allow for continuing changes to tenant spaces due to the build-out sequences typically seen in fast-paced retail projects. That requires a lot of coordination with the owner and various design teams, but you must know everyone is on the same page and the system is free of trouble when the grand opening occurs.

Another difference is the flexibility that is built into the fire-alarm system to allow future tenant build-outs and expansion without affecting the operation of other tenants and the main covered-mall building. You need a solid and flexible backbone for your fire-alarm system to add devices to the circuits without having to re-wire or change software.

Q. Can you give examples of others?

A. A fire-alarm system that meets the minimum requirements may not be truly effective. It has to fit with the unique building situation. It's hard to rank factors that should be addressed, but certainly, beyond code, we look at initial cost for the equipment, as well as installation and maintenance. You have to consider the life span of the system: Will it serve the building as long as it needs to? What about retrofitting to expand the facility?

Q. What other factors go into designing a life-safety system?

A. You have to be concerned about the owners' preferences for design and the aesthetics of the building. You also have to consider the systems you're integrating, relative to other features. For instance, are you using sprinkler protection to gain flexibility with extended-travel distance or interior finish? You have to consider those give-and-take elements in the codes and standards and how each system is going to impact the overall system. There are also performance-based fire-safety designs that require specific suppression thresholds, egress times, fire containment or smoke-spread issues. These additional factors need to be taken into account and coordinated with the intelligence gathered during a building fire emergency by the fire detection and alarm systems.

Q. What would you recommend to an independent, medium-sized company taking over space for its retail operation?

A. It's important to compare the existing system to your fire-protection goals and objectives. Obtain original design documentation — things like shop drawings. Oftentimes, all you may have on file are the design drawings, which can be dramatically different from what is in the building.

Do a gap analysis to determine cost before moving into the facility. For instance, a building has A, B and C elements in the fire-alarm system. Then you determine, "I need to upgrade A and maybe add D and E elements." Once you figure out what you have and where you need to go, you can plan what you need to do to get there.

It is also important to know the specification to which devices were installed and if any violation notices have been filed with the local code official. Know what you are getting into — that might be the reason the space is vacated. Find out if the systems have been tested and maintained. Get those test results from the prior owner, or maybe the local code official has them on file.

Q. After a retailer takes over space, what should they be concerned about?

A. Retailers can do things that trigger upgrade requirements to the system. A good example would be what the Life Safety Code® calls a bulk-merchandising retail facility — or "big box" retail stores where you not only have highly piled merchandise, you're locating your stock and displays in the same area. You don't have a back-of-house, per se, or a warehouse section. You are bringing more of a hazard closer to the occupants. That needs to be considered in the fire-alarm and sprinkler system designs.

The type of stock on display can also alter requirements. For big-box stores, you have everything from pottery to lawn mowers to pool chemicals, so it's important to look at the types of merchandise and where it is located. Think about things like, "Is standard protection going to be adequate, or do I need additional detection or specific detection devices?" That depends on the fire effects of the merchandise, the storage arrays present, and many other factors such as loss tolerances and specific fire test results on the commodity.

Also, consider the impact of re-locating merchandise. If you had chemicals in the northeast section of the building and you moved them to another section of the building, you may not have adequate protection because the sprinkler system, ceiling heights, obstructions and storage arrangement may be different. The same goes for fire detection. A beam smoke detector may work perfectly for a given situation, versus a spot detector, but if you change merchandise around, that may no longer offer adequate protection or it may increase false alarms.

Q. What are the effects of false alarms in a retail setting?

A. The direct effects are fines and penalties for the amount of false alarms. Business interruption is obviously another impact.

One of the indirect results is occupant complacency. The more we hear alarms, the less likely we are to respond. This is actually quite common in retail facilities. People do not rush to the exits when they hear an alarm, especially in covered-mall buildings. People typically stand around and look to see where the fire is. They are looking for response from other people as a trigger for them to get out of the building. That's why voice-communication systems are so important. Give people instruction — verbal instruction — that says, "There's a fire in the building. Please move to the nearest exit and out of the building." In large occupant situations, it is a significant benefit to provide instructions that can direct people to move out of the building. The more information occupants can understand, the better their response.

(Continued on page 8)

Q&A: ASK THE EXPERT

Rapid Build-Up and Design Flexibility Are Essential for Retail Life-Safety Systems

(Continued from page 7)

Q. How do you prevent false alarms?

A. You can't prevent false alarms completely. There's never going to be a way to fully prevent them, but there are means to reduce unwanted alarms. First of all, you need to properly design and install the fire-alarm system. Use appropriate devices such as multi-sensor detectors that look for a specific fire signature. Proper installation is a must — if you are not installing the way the manufacturer recommends, you will have more false alarms. It's important to properly commission the fire-alarm system. Properly maintain and test your fire-protection systems — I can't stress this enough. Stay on top of your maintenance and routine testing required by codes and standards.

Q. What about field-proven performance on new technologies?

A. For fire alarm or sprinkler systems, it's important to have market recognition for certain technologies and systems. It's similar to not wanting to drive the first model year of a car. You want to see what kind of advantages or disadvantages come about from that system or technology or what potential problems show up after the system has been out and in full use in real life applications for a while. It also helps to get buy-in from an owner who has to pay for the system and from the local authorities having jurisdiction that have to approve it. LS

Reflected Type Beam Smoke Detector BEAM1224S:

The BEAM1224S is a 4-wire, single-ended, reflected type beam smoke detector that includes an 8" reflector and an integral sensitivity test.

BEAM1224S	
Detection:	Infrared Beam
Wiring:	4-wire
Operating Voltage:	15 to 32 VDC
Alarm Current:	38.5 mA max. avg.
Standby Current:	17 mA max. @ 24 VDC
Trouble Current:	8.5 mA max. @ 24 VDC
Temperature Range:	-22°F to 131°F (-30°C to 55°C)
Humidity Range:	10% to 93% RH noncondensing
Range:	16 ft. to 328 ft. (5 m to 100 m)
Sensitivity:	Level 1 - 25%; Level 2 - 30%; Level 3 - 40%; Level 4 - 50%; Acclimate Level 1 - 30-50%; Acclimate Level 2 - 40-50%
Dimensions:	Detector: 10" H x 7.5" W x 3.3" D (254 mm x 191 mm x 84mm); Reflector, 16-230 ft.: 7.9" H x 9.1" W (200 mm x 230 mm)

Carbon Monoxide:
Get the Facts from Someone You Trust.

Carbon monoxide (CO) is an odorless, colorless, tasteless and highly toxic gas. It is produced when flame-fueled devices malfunction or don't receive sufficient ventilation.

Many common residential and commercial appliances can release carbon monoxide, such as clothes dryers, power tools, hot water heaters, furnaces, space heaters and generators.

Many ordinary household appliances produce CO.

If inhaled, CO immediately absorbs into your bloodstream, replacing your oxygen. Depending on the concentration of CO in the air and your length of exposure, effects can range from a simple headache to suffocation.

The best way to protect building occupants against CO poisoning is to install system connected detectors.

Only monitored carbon monoxide detectors are guaranteed to protect all the time.

As organizations such as the National Safety Council and the Centers for Disease Control and Prevention continue to educate the world on the dangers of CO, the market continues to grow.

Right now, CO detectors are the fastest growing segment of the life safety industry.

In fact, as of August 2006, 12 states and dozens of municipalities require CO detectors in residential and commercial dwellings. Nine more states have legislation pending.

To learn more about CO and the recommended criteria for choosing a CO detector, take our online training at www.systemsensor.com/CO.

The System Sensor CO1224 carbon monoxide detector safeguards life with its electrochemical sensing technology, the industry's most reliable technology that accurately measures and provides early warning of carbon monoxide levels in the air. CO1224 also offers:

- *System connecting capabilities for around-the-clock protection.*
- *Full compliance with UL 2075, offering both a trouble relay and wiring supervision.*
- *The lowest current draw in the industry.*
- *Versatile mounting for wall and ceiling.*

SYSTEM SENSOR®

advanced ideas. advanced solutions.℠

800/736-7672

www.systemsensor.com

Top 5 Things to Know About CO

Nearly every residential and commercial dwelling includes flame-fueled devices of some sort. These may include gas and hot-water heaters, gas and oil furnaces, clothes dryers, fireplaces, vehicles, charcoal grills, engine-powered tools and lawnmowers. If any of these is not properly vented or malfunctions, carbon monoxide can be produced.

Carbon monoxide, or CO, is an odorless, colorless, tasteless and highly toxic gas. If inhaled, it will immediately absorb into your bloodstream, producing a toxic compound that will interfere with your body's ability to absorb and transport oxygen to your vital organs. The rate at which your body will feel the effects of CO depends on several variables, including the concentration of CO in the air, how long you've been exposed, your current health status and your lifestyle activity level.

See Table 1 for the National Fire Protection Association's[1] (NFPA) breakdown of symptoms by CO concentration. These approximations are based on healthy adults. Children, elderly and persons with pre-existing physical conditions might be more susceptible to the effects of CO.

Because you cannot see, smell or taste CO, the only way to protect yourself from this deadly gas is with CO detectors. Although the CO detector market is one of the fastest growing in the life safety industry, security professionals are not always certain how to choose the best CO detector.

The Top 5 things you should know when choosing a CO detector are:

1. There are three common types of CO sensing technologies: Metal Oxide Semiconductor (MOS), Biomimetic and Electrochemical.

MOS sensors were the first CO sensors invented. An internal heating device heats tin oxide (SnO_2) to at least 250 degrees Celsius. When heated, oxygen atoms in the air bond to the SnO_2. If CO mixes with the oxygen atoms, it will release electrons into the semiconductor, increasing the current. This increase in current sets off the alarm in the detector. The drawback is that, typically, MOS detectors draw more current than other technologies due to the power consumed by the heater.

The second type of technology is biomimetic. Inside a biomimetic sensor, an infrared light passes through a synthetic hemoglobin membrane. When CO is present, the amount of light transmitted decreases and the alarm is activated. One drawback of biomimetic detectors is that as

Table 1: CO Symptoms

Concentration (ppm CO)	Symptoms
50	No adverse effects with 8 hours of exposure
200	Mild headache after 2-3 hours of exposure
400	Headache and nausea after 1-2 hours of exposure
800	Headache, nausea and dizziness after 45 minutes of exposure; collapse and unconsciousness after 2 hours of exposure
1,000	Loss of consciousness after 1 hour of exposure
1,600	Headache, nausea and dizziness after 20 minutes of exposure
3,200	Headache, nausea and dizziness after 5-10 minutes of exposure; collapse and unconsciousness after 30 minutes of exposure
6,400	Headache and dizziness after 1-2 minutes of exposure; unconsciousness and danger of death after 10-15 minutes of exposure
12,800 (1.28% by volume)	Immediate physiological effects; unconsciousness and danger of death after 1-3 minutes of exposure

*ppm = parts per million

Carbon Monoxide Detector CO1224

Safeguards life by providing early warning when its electrochemical sensing technology accurately measures carbon monoxide levels in the air.

CO1224	
Electrical Specifications	
Voltage:	12/24 VDC
Audible Signal:	85 dB in alarm
Standby Current:	20 mA
Max. Alarm Current:	40 mA (75 mA test)
Alarm Contact Ratings:	0.5 A @ 30 VDC
Trouble Contact Ratings:	0.5 A @ 30 VDC
Physical Specifications	
Size Length:	5.1", Width: 3.3", Height: 1.3"
Approximate Weight:	7 oz
Operating Temperature Range:	0° – 40° C (32° – 104° F)
Operating Humidity Range:	22 – 90% RH
Input Terminals:	14 – 22 AWG
Mounting:	Single-gang back box; surface mount to wall or ceiling

CO and other contaminants accumulate over time, these detectors tend to false alarm.

The newest, most refined sensors available today are the electrochemical sensors. These sensors provide accurate measurements (in parts per million) of CO concentrations. This is done through sensors that use a platinum/acid combination to promote the reaction between CO and the oxygen in the air. The electrons produced by this combination induce a small current between the two electrodes, which is proportional to the amount of CO in the air. External circuitry monitors changes in the current to calculate the concentration of CO gas. Readings are taken from low levels that may be hazardous over long periods of time to high concentrations that present an immediate danger.

2. Installation locations vary by manufacturer.
According to the NFPA (NFPA 720, 2005 edition 5.1.1.1 and 5.1.1.2), all CO detectors "shall be centrally located outside of each separate sleeping area in the immediate vicinity of the bedrooms," and each detector "shall be located on the wall, ceiling or other location as specified in the installation instructions that accompany the unit."

Manufacturers' recommendations vary to a certain degree based on research conducted with each one's specific detector. Therefore, make sure to read the provided installation manual for each detector before installing.

3. Although detectors require specific power sources, system-connected, monitored CO detectors are the most reliable choice.
There are three main power sources for CO detectors. The first, battery-powered CO detectors, require annual battery replacement. When the battery has reached its maximum lifespan, the detector will chirp at regular intervals to alert homeowners. However, some homeowners become annoyed by the chirping, and, instead of replacing the battery, they remove it. Therefore, battery-powered CO detectors require discipline (checking the battery) and maintenance (replacing the battery) by the homeowner.

The second, a 120-volt powered detector, runs off the main power supply in the dwelling. Like battery-powered detectors, most of these detectors do not have monitoring capabilities. So, if your detectors lose power in a blackout, for example, you may not realize your detectors are not working – unless the detector has a battery backup feature. Plus, a power outage is a crucial time to protect against CO because people tend to use more CO-generating appliances, such as space heaters and generators, for comfort.

The third, a 12/24-volt device, is the most reliable means of powering a CO detector. These system-connected CO detectors can be wired to either a security or fire panel. This type of system offers monitoring by a central station to provide extra protection if the residence is empty, if the residents are sleeping, or if the residents are already suffering the effects from CO. If a problem arises with the detector or CO concentration hits dangerous levels, the owner may not only be notified by the detector and the control panel, but also by the central station. If the owner is unreachable, the central station may send the proper authorities to investigate. Procedures will vary from station to station, but the residents will always be guaranteed protection 24/7.

4. System-connected CO detectors should be fully listed to UL 2075.
A system-wconnected CO detector should be more than just listed to UL 2075; it should be specifically designed for system operation. UL 2075 requires CO detectors to have a trouble relay and wiring supervision. CO detectors should be designed around these life-saving features to guarantee that if a problem exists with the sensing circuit or if the detector has reached its maximum lifespan, the trouble relay will send a message to the control panel.

5. Current draw matters.
Choose a CO detector with a low current draw so that more CO detectors can be connected to the panel, without having to purchase a more expensive panel or an extra auxiliary power supply. LS

1. NFPA 720, 2005 edition, Annex B Dangers of Carbon Monoxide, B.1 Carbon Monoxide, Table B.1 Symptoms of Carbon Monoxide Exposure Based on Concentration.
2. Recommended Policies for State and Local Legislation and Ordinances for Carbon Monoxide Life Safety Devices, December 2005, Existing Laws & Pending Legislation, www.nema.org.

Sound Design Powers Flashy New SpectrAlert® Advance

New notification appliances are easier to specify, configure and install.

The final step before a building is approved for occupancy is installing the fire system. With anticipation of an on-time grand opening, building owners depend on the installer to construct that system quickly and accurately.

With that in mind, three years ago, System Sensor started conducting nationwide interviews with commercial fire-system dealers, installers, engineers and designers to prioritize requirements for designing a superior line of audible/visible (A/V) notification appliances. "Industry input shaped our design philosophy, which is clearly reflected in the end product," says Scott Lang, product manager with System Sensor's A/V business unit.

The end product Lang refers to is System Sensor's SpectrAlert® Advance, the industry's most refined series of A/V devices. The series contains wall-mount horns, strobes, horn/strobes, chimes and chime strobes; ceiling-mount strobes and horn/strobes; and a complete line of outdoor wall and ceiling products. Each product is rich with features designed to make the specification, configuration and installation of the fire system simpler.

Specification Ease

"All SpectrAlert Advance products are built from a single platform to create a great deal of commonality between the models," Lang says. One of the commonalities that Lang is referring to is the wide range of field-selectable candela settings that are available on both wall and ceiling products. These are: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177 and 185 candela. Specification is simple with multiple candelas because one unit

SpectrAlert® Advance P2R

SpectrAlert® Advance selectable-output horns, strobes and horn/strobes are rich with features guaranteed to cut installation times and maximize profits.

P2R	
Standard Operating Temperature:	32°F to 120°F (0°C to 49°C)
K Series Operating Temperature:	-40°F to 151°F (-40°C to 66°C)
Humidity Range:	10 to 93% non-condensing (indoor products)
Strobe Flash Rate:	1 flash per second
Nominal Voltage:	Regulated 12DC/FWR or regulated 24DC/FWR
Operating Voltage Range 2:	8 to 17.5 V (12V nominal) or 16 to 33 V (24 nominal)
Input terminal wire gauge:	12 to 18 AWG
Ceiling-mount dimensions (including lens):	6.8"diameter x 2.5"high (173 mm diameter x 64 mm high)
Wall-mount dimensions (including lens):	5.6"L x 4.7"W x 2.5"D (142 mm L x 119 mm W x 64 mm D)
Horn dimensions:	5.6"L x 4.7"W x 1.3"D (142 mm L x 119 mm W x 33 mm D)

can be used in many settings, and, because the low current draw is the same for wall and ceiling products, voltage drops are easier to calculate.

Other commonalities amongst SpectrAlert Advance wall and ceiling products include 15 and 15/75 candela operation with 12 or 24 volts, two- and four-wire horn/strobes, horns rated at 88+ dbA (@ 16 volts) and a tamper-resistant capability via Torx head screw.

A full-line of outdoor products is also available to ease specification, including four-wire horn/strobes and ceiling-mount devices. System Sensor's "K"-series products are UL listed to function in minus 40 degrees to 151 degrees Fahrenheit. The devices are waterproof with a NEMA 3R rating for the plastic enclosure, making them ideal for use in such applications as parking garages, sporting areas, pool decks and balconies.

Even though SpectrAlert Advance is packed with features that ease specification, it was created with design costs in mind. According to Lang, "SpectrAlert Advance products draw up to 40 percent less current than competing models and are electrically compatible with previous SpectrAlert devices."

Configuration Ease

Configuring SpectrAlert Advance product is another simple process. The field-selectable candelas, which are selected via a slide switch, are visible from the floor after installation. Also, there is no need to select 12- or 24-volt operation at 15 and 15/75 candela anymore because this is automatic with SpectrAlert Advance.

As for tone selection, an easy-to-interpret rotary switch allows simple selection from three tone patterns, three volume settings on horns and horn/strobes, and two volume settings on chimes and chime/strobes. The horn and chime tones are synchronizable to eliminate audible signal interference between devices. And, DIP switches don't need to be set and shunts don't need to be placed.

SpectrAlert® Advance Cross-Reference Chart

Model Number	Description	Existing Model	Description
P2R	2 WIRE HORN/STROBE STD CD RED	P1224MC	HORN/STROBE RED
P2RH	2 WIRE HORN/STROBE HI CD RED		
P2RK	2 WIRE HORN/STROBE STD CD RED OUTDOOR	P1224MCK	HORN/STROBE RED OUTDOOR
P2RHK	2 WIRE HORN/STROBE HI CD RED OUTDOOR		
P2R-P	2 WIRE HORN/STROBE STD CD RED NO TEXT	P1224MCP	HORN/STROBE RED NO TEXT
P2RH-P	2 WIRE HORN/STROBE HI CD RED NO TEXT		
P2R-SP	2 WIRE HORN/STROBE STD CD RED SPANISH	P1224MCSP	HORN/STROBE RED SPANISH
P2RH-SP	2 WIRE HORN/STROBE HI CD RED SPANISH		
P2W	2 WIRE HORN/STROBE STD CD WHITE	P1224MCW	HORN/STROBE WHITE
P2WH	2 WIRE HORN/STROBE HI CD WHITE		
P2W-P	2 WIRE HORN/STROBE STD CD WHITE NO TEXT	P1224MCPW	HORN/STROBE WHITE NO TEXT
P2WH-P	2 WIRE HORN/STROBE HI CD WHITE NO TEXT		
P4R	4 WIRE HORN/STROBE STD CD RED	P1224MC	HORN/STROBE RED
P4RH	4 WIRE HORN/STROBE HI CD RED		
P4RK	4 WIRE HORN/STROBE STD CD RED OUTDOOR	P1224MCK	HORN/STROBE RED OUTDOOR
P4RHK	4 WIRE HORN/STROBE HI CD RED OUTDOOR		
P4R-P	4 WIRE HORN/STROBE STD CD RED NO TEXT	P1224MCP	HORN/STROBE RED NO TEXT
P4RH-P	4 WIRE HORN/STROBE HI CD RED NO TEXT		
P4W	4 WIRE HORN/STROBE STD CD WHITE	P1224MCW	HORN/STROBE WHITE
P4WH	4 WIRE HORN/STROBE HI CD WHITE		
P4W-P	4 WIRE HORN/STROBE STD CD WHITE NO TEXT	P1224MCPW	HORN/STROBE WHITE NO TEXT
P4WH-P	4 WIRE HORN/STROBE HI CD WHITE NO TEXT		
SR	STROBE STD CD RED	S1224MC	STROBE RED
SRH	STROBE HI CD RED		
SRK	STROBE STD CD RED OUTDOOR	S1224MCK	STROBE RED OUTDOOR
SRHK	STROBE HI CD RED OUTDOOR		
SR-P	STROBE STD CD RED NO TEXT	S1224MCP	STROBE RED NO TEXT
SRH-P	STROBE HI CD RED NO TEXT		
SR-SP	STROBE STD CD RED SPANISH	S1224MCSP	STROBE RED SPANISH
SRH-SP	STROBE HI CD RED SPANISH		
SW	STROBE STD CD WHITE	S1224MCW	STROBE WHITE
SWH	STROBE HI CD WHITE		
SW-P	STROBE STD CD WHITE NO TEXT	S1224MCPW	STROBE WHITE NO TEXT
SWH-P	STROBE HI CD WHITE NO TEXT		
PC2R	2 WIRE HORN/STROBE CEILING STD CD RED	PC2415	HORN/STROBE CEILING 15CD RED
		PC241575	HORN/STROBE CEILING 15/75CD RED
		PC2430	HORN/STROBE CEILING 30CD RED
		PC2475	HORN/STROBE CEILING 75CD RED
		PC2495	HORN/STROBE CEILING 95CD RED
		PC24115	HORN/STROBE CEILING 115CD RED
PC2RH	2 WIRE HORN/STROBE CEILING HI CD RED	PC24177	HORN/STROBE CEILING 177CD RED
PC2RK	2 WIRE HORN/STROBE CEILING STD CD RED OUTDOOR		
PC2RHK	2 WIRE HORN/STROBE CEILING HI CD RED OUTDOOR		
PC2R-P	2 WIRE HORN/STROBE CEILING STD CD RED NO TEXT	PC241575P	HORN/STROBE CEILING 15/75CD RED NO TEXT
PC2RH-P	2 WIRE HORN/STROBE CEILING HI CD RED NO TEXT		
PC2W	2 WIRE HORN/STROBE CEILING STD CD WHITE	PC2415W	HORN/STROBE CEILING 15CD WHITE
		PC241575W	HORN/STROBE CEILING 15/75CD WHITE
		PC2430W	HORN/STROBE CEILING 30CD WHITE
		PC2475W	HORN/STROBE CEILING 75CD WHITE
		PC2495W	HORN/STROBE CEILING 95CD WHITE
		PC24115W	HORN/STROBE CEILING 115CD WHITE
PC2WH	2 WIRE HORN/STROBE CEILING HI CD WHITE	PC24177W	HORN/STROBE CEILING 177CD WHITE
PC2W-P	2 WIRE HORN/STROBE CEILING STD CD WHITE NO TEXT	PC241575PW	HORN/STROBE CEILING 15/75CD WHITE NO TEXT
PC2WH-P	2 WIRE HORN/STROBE CEILING HI CD WHITE NO TEXT		
PC2W-SP	2 WIRE HORN/STROBE CEILING STD CD WHITE SPANISH		
PC2WH-SP	2 WIRE HORN/STROBE CEILING HI CD WHITE SPANISH		

(Continued on page 14)

Sound Design Powers Flashy New SpectrAlert® Advance

(Continued from page 12)

Installation Ease

Several features make SpectrAlert Advance easy to install, including a plug-in design for pre-wiring the notification appliance circuit. This design allows installers to simply snap their device onto a mounting plate, which is universal for wall and ceiling products, and attach it with a captive mounting screw.

The universal mounting plates, which are compatible with 4-inch square, 4-inch octagon, single-gang and double-gang back boxes, come with shorting springs that allow installers to check for notification appliance circuit continuity before installing devices. The horn and strobe on four-wire horn/strobes can be powered independently.

Other features that ease installation include a paint cover to protect the mounting plate and a design that eliminates protrusion into the back box, allowing more room to work within the box and easier management of wires. A lens centered over the junction box helps the installer meet device-height requirements.

Advance Durability

Along with its new industrial look, SpectrAlert Advance products have industrial strength. Not only are they UL and CSFM listed and FM approved, these products have passed System Sensor's internal quality assurance program. All System Sensor products are functionally, environmentally, mechanically and electrically tested in extreme conditions before going to market.

"SpectrAlert Advance lends itself to easy specification, and its design features minimize configuration time and installation costs," Lang says. "For the distributor, the benefit is a complete product line that will increase volume and sales. It's a win for everyone down the line." LS

Model Number	Description	Existing Model	Description
PC4R	4 WIRE HORN/STROBE CEILING STD CD RED	PC2415	HORN/STROBE CEILING 15CD RED
		PC241575	HORN/STROBE CEILING 15/75CD RED
		PC2430	HORN/STROBE CEILING 30CD RED
		PC2475	HORN/STROBE CEILING 75CD RED
		PC2495	HORN/STROBE CEILING 95CD RED
		PC24115	HORN/STROBE CEILING 115CD RED
PC4RH	4 WIRE HORN/STROBE CEILING HI CD RED	PC24177	HORN/STROBE CEILING 177CD RED
PC4RK	4 WIRE HORN/STROBE CEILING STD CD RED OUTDOOR		
PC4RHK	4 WIRE HORN/STROBE CEILING HI CD RED OUTDOOR		
PC4W	4 WIRE HORN/STROBE CEILING STD CD WHITE	PC2415W	HORN/STROBE CEILING 15CD WHITE
		PC241575W	HORN/STROBE CEILING 15/75CD WHITE
		PC2430W	HORN/STROBE CEILING 30CD WHITE
		PC2475W	HORN/STROBE CEILING 75CD WHITE
		PC2495W	HORN/STROBE CEILING 95CD WHITE
		PC24115W	HORN/STROBE CEILING 115CD WHITE
PC4WH	4 WIRE HORN/STROBE CEILING HI CD WHITE	PC24177W	HORN/STROBE CEILING 177CD WHITE
SCR	STROBE CEILING STD CD RED	SC2415	STROBE CEILING 15CD RED
		SC241575	STROBE CEILING 15/75CD RED
		SC2430	STROBE CEILING 30CD RED
		SC2475	STROBE CEILING 75CD RED
		SC2495	STROBE CEILING 95CD RED
		SC24115	STROBE CEILING 115CD RED
SCRH	STROBE CEILING HI CD RED	SC24177	STROBE CEILING 177CD RED
SCRK	STROBE CEILING STD CD RED OUTDOOR		
SCRHK	STROBE CEILING HI CD RED OUTDOOR		
SCR-P	STROBE CEILING HI CD RED NO TEXT	SC241575P	STROBE CEILING 15/75CD RED NO TEXT
SCRH-P	STROBE CEILING STD CD RED OUTDOOR NO TEXT		
SCW	STROBE CEILING STD CD WHITE	SC2415W	STROBE CEILING 15CD WHITE
		SC241575W	STROBE CEILING 15/75CD WHITE
		SC2430W	STROBE CEILING 30CD WHITE
		SC2475W	STROBE CEILING 75CD WHITE
		SC2495W	STROBE CEILING 95CD WHITE
		SC24115W	STROBE CEILING 115CD WHITE
SCWH	STROBE CEILING HI CD WHITE	SC24177W	STROBE CEILING 177CD WHITE
SCW-P	STROBE CEILING STD CD WHITE NO TEXT	SC241575PW	STROBE CEILING 15/75CD WHITE NO TEXT
SCWH-P	STROBE CEILING HI CD WHITE NO TEXT		
SCW-SP	STROBE CEILING STD CD WHITE SPANISH		
SCWH-SP	STROBE CEILING HI CD WHITE SPANISH		
CHSR	2 WIRE CHIME/STROBE STD CD RED	CH24MC	CHIME/STROBE RED
CHSW	2 WIRE CHIME/STROBE STD CD WHITE	CH24MCW	CHIME/STROBE WHITE
HR	HORN RED	H12/24	HORN RED
HRK	HORN OUTDOOR RED	H12/24K	HORN OUTDOOR
HW	HORN WHITE	H12/24W	HORN WHITE
CHR	CHIME RED	CH12/24	CHIME RED
CHW	CHIME WHITE	CH12/24W	CHIME WHITE
BBS-2	RED WALL BACK BOX SKIRT	BBS	RED WALL BACK BOX SKIRT
BBSW-2	WHITE WALL BACK BOX SKIRT	BBSW	WHITE WALL BACK BOX SKIRT
BBSC-2	RED CEILING BACK BOX SKIRT	BBSC	RED CEILING BACK BOX SKIRT
BBSCW-2	WHITE CEILING BACK BOX SKIRT	BBSCW	WHITE CEILING BACK BOX SKIRT

Artworks courtesy of B.D. Mallon Gallery, Geneva, IL.

The Advance You've Been Looking For

SpectrAlert® Advance is the industry's newest audible/visible work of art. Designed with aesthetics in mind, these red or white, wall or ceiling notification appliances blend with the ambience of any room – indoors or outdoors. The textured finish minimizes noticeable shine and unattractive fingerprints. And, because of SpectrAlert Advance's plug-in design, your devices will mount flush – no more gaps!

But, there is more to SpectrAlert Advance than beauty. Consistent features for wall and ceiling products, such as eleven candela settings, multiple volume levels at 90+ dBA, and a rotary switch for horn tone selection, simplify the specification, configuration and installation processes.

To uncover more benefits of SpectrAlert Advance, visit us at www.systemsensor.com/av or call for a comprehensive SpectrAlert Advance brochure or E•DOCS CD-ROM at 800-SENSOR2.

SYSTEM SENSOR®

advanced ideas. advanced solutions.™

800/736-7672

www.systemsensor.com

Innovair™ Duct Smoke Detectors

- Initiate HVAC control devices to prevent the spread of smoke.
- Are available in Low-Flow, Watertight and Hi-Temperature models.
- Are complemented by a complete line of audible, visible and test accessories.

Multi-Voltage Conventional Relays

- Control fan and damper assemblies, air handling units and other auxiliary functions, such as elevator recall and door closure.
- Feature activation LEDs for visual indication.
- Are available in enclosure, track mount and pigtail versions.

NEW! SP3 High-Decibel Speakers

- Offer greater sound output at all tap settings.
- Produce 89 dB at 2 watts.
- Work well in high-ambient noise environments.

Acclimate™ Multi-Criteria Detectors

- Automatically adjust their sensitivity to the local environment.
- Monitor signal trends to reduce nuisance alarms.
- Increase fire protection with photoelectric and 135°F thermal sensors.

Photoelectric Smoke Detectors

- Are immune from dust and dirt build-up.
- Provide a fast, accurate response to smoke produced by a wide variety of combustion sources through its unique optical sensing chamber.

Intelligence and Addressability

Only on System Sensor Beam Smoke Detectors

Protect open areas with single-ended, reflected-type beam smoke detectors. Where other methods of smoke detection are difficult to install and maintain, these detectors:

Protect up to 328 feet of building space where spot detectors are not suitable and where temperature ranges greatly fluctuate.

Are easier to install than dual-ended projected beam detectors.

Are simple to align with a built-in, two-digit signal strength meter.

Contain six standard sensitivity selections, including two Acclimate settings that automatically adapt to the environment with advanced software algorithms.

Can be equipped with an integral sensitivity test filter that allows the user to quickly and easily meet the annual maintenance and test requirements of NFPA 72®.

For more information on **System Sensor Beam Smoke Detectors,** the most advanced in the industry, visit our website at www.systemsensor.com/beam or call for your free E•DOCS CD-ROM, a comprehensive resource for technical information, at **800/736-7672**.

SYSTEM SENSOR®

advanced ideas. advanced solutions.™

800/736-7672

www.systemsensor.com