

# Spot The Safety Violation: 10 Tips for Protecting Workers from Carbon Monoxide



This paint sprayer is being used to paint this room, but it's not designed to be used indoors. Why could such use be hazardous?



It's critical that workers select the right equipment for a specific job and use that equipment only as it was intended. For example, using equipment or tools designed for outdoor use in an enclosed, indoor space can have serious—and even fatal—consequences.

This picture from [eLCOSH](#) shows a paint sprayer intended for use outdoors being used indoors to paint a room. Although the sprayer may get the job done faster, it may also expose workers to carbon monoxide (CO) from the equipment's exhaust.

CO is a colourless, odourless gas, which is usually formed from the incomplete combustion of fuels such as coal, coke, wood, oil and gasoline. Most of the CO released into the air comes from internal combustion engines.

In an enclosed space, such as the room in the picture, this toxic gas can build up and, depending on the levels, cause workers to suffer from:

- Mild to severe headaches
- Weakness, dizziness, nausea and fainting
- An increased or irregular heart beat
- Loss of consciousness
- Death.

Workplace safety incidents involving CO are far too common:

- A crew of workers in Ontario was cleaning an underground parking garage using four gas-powered washers. While they were power washing, the internal exhaust fans in the garage stopped working. One worker died from carbon monoxide toxicity. The others were treated for carbon monoxide exposure and released. The company pleaded guilty to failing to limit the exposure of workers to carbon monoxide and was fined \$75,000 [*Ground Maintenance Cleaning Contractors Inc.*, Govt. News Release, July 13, 2016].
- In Newfoundland, several workers were in a warehouse, operating and working around propane-powered fork lift trucks. They were hospitalized for CO poisoning.
- In BC, three construction workers had to be treated for CO poisoning due to the improper use of a gas-powered space heater they were using to warm a building that was under construction. (See portable heater requirements, space heater safety checklist and space heater toolbox talk handout.)
- A farm worker in Québec died of CO poisoning after using a gas-powered pressure washer to clean a non-ventilated pigsty inside a building.

## 10 TIPS FOR PROTECTING WORKERS FROM CARBON MONOXIDE

If your workers are at risk of exposure to carbon monoxide on the job, you have a duty to take all reasonable steps to protect them. Here are 10 tips that can help you do so:

1. Install and properly maintain an effective ventilation system that will remove CO from work areas or require workers to use appropriate respiratory protection.
2. Maintain equipment and appliances that can produce CO, including powered mobile equipment, space heaters, water heaters and paint sprayers, in good working condition to promote their safe operation and to reduce the creation of CO.
3. Always install and use equipment according to the manufacturer's instructions. For example, if equipment is designed for outdoor use only, ensure workers don't use it indoors.
4. Consider switching from equipment powered by gasoline and similar fuels to ones powered by electricity, batteries or compressed air if they can be used safely.
5. Bar the use of gasoline- or propane-powered equipment in poorly ventilated areas.
6. If workers are working in confined spaces where the presence of CO is suspected, ensure that they test for oxygen sufficiency before entering.
7. Monitor the air in areas where CO may be present, including enclosed areas, to ensure that CO levels remain within occupational exposure limits.
8. Install CO monitors with audible alarms.
9. Give workers personal CO monitors with audible alarms if potential exposure to CO exists.
10. Educate workers on the sources and conditions that may result in CO poisoning as well as the symptoms and control of CO exposure. For example, give them this handout to ensure your CO training covers the key areas.

## 6 TIPS FOR WORKERS

In addition, here are some tips for workers on how to protect themselves from CO poisoning:

1. Report any situation that might cause CO to accumulate.
2. Be alert to ventilation problems—especially in enclosed areas where gases from burning fuels may be released.
3. Avoid the use of gas-powered engines, such as those in heaters and forklifts, while working in enclosed spaces.
4. Report promptly complaints of dizziness, drowsiness or nausea.
5. Avoid overexertion if you suspect CO poisoning and leave the contaminated area immediately.
6. If you get sick, tell your doctor that you may have been exposed to CO.