# CO2 Safety In Restaurants, Bars And Private Events Meeting Kit


## WHAT'S AT STAKE

Carbon dioxide (CO2) can build up in poorly ventilated restaurants, bars, and event spaces. The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) recommends keeping CO2 levels below 1,000 ppm for safety.  High CO2 levels can lead to headaches, dizziness, and difficulty breathing. To ensure safety, these venues should have a plan for gas leaks and proper ventilation to maintain good indoor air quality.

## WHAT'S THE DANGER

The risks associated with CO2 in restaurants, bars, and private events primarily stem from its potential to displace oxygen in the air. When CO2 concentrations rise to high levels, it can lead to oxygen deprivation, causing symptoms like dizziness, headaches, shortness of breath, confusion, and in severe cases, loss of consciousness or death. This situation can occur in poorly ventilated or enclosed spaces where CO2 accumulates, such as storage areas or basements housing beverage dispensing equipment.

Another risk is the potential for CO2 leaks from pressurized cylinders or equipment. In the event of a leak, CO2 can rapidly displace breathable air, leading to dangerous conditions. Additionally, if CO2 comes into direct contact with the skin or eyes in its compressed form, it can cause frostbite or irritation. Here are some of the dangers:

- **Immediate health impacts:** Headaches, dizziness, fatigue, nausea, and difficulty breathing are common symptoms of CO2 exposure. These can significantly impact the dining experience for patrons and create a hazardous work environment for staff.
- **Reduced cognitive function:** High CO2 levels can lead to trouble concentrating, making decisions, and feeling sluggish. This can be particularly dangerous for staff who need to be alert and make quick judgments, but it can also affect patrons' ability to enjoy themselves or navigate safely if disoriented.
- **Long-term health effects:** While less immediate, chronic exposure to elevated CO2 levels has been linked to respiratory problems, asthma development, and even an increased risk of heart disease.
- **Suffocation risk:** In extreme cases, very high CO2 levels can displace oxygen, causing suffocation and even death. This is a particular concern in situations

where ventilation is limited, leaks occur from CO2 tanks used for carbonation, or large crowds gather in confined spaces.

## HOW TO PROTECT YOURSELF

High CO2 levels present a significant risk to health and safety. It is crucial to implement effective measures to mitigate these risks and ensure the well-being of everyone within indoor environments. Here are some strategies to address these risks:

**Enhance Ventilation:**

- Prioritize natural airflow whenever possible. Open windows and doors regularly, especially during cooler months. Consider installing operable skylights or roof hatches for additional air circulation. Encourage patrons to dress appropriately for these ventilation strategies.
- Ensure existing HVAC systems are properly sized and maintained for the space's occupancy. Schedule regular maintenance and consider upgrades to systems with CO2 monitoring capabilities. These systems can automatically adjust ventilation rates to maintain safe CO2 levels.
- Strategically placed fans can significantly improve air circulation, particularly in high-occupancy areas or near cooking stations that generate CO2. Ceiling fans and strategically positioned oscillating fans can be effective solutions.

**CO2 Monitoring and Response:**

- **Invest in CO2 Monitors:** Install continuous CO2 monitors throughout the space, particularly in areas with high occupancy or limited natural ventilation. These monitors will provide real-time data on CO2 levels.
- **Establish Action Thresholds:** Set clear CO2 level thresholds with corresponding actions. When levels exceed the safe limit (below 1000 ppm as recommended by ASHRAE), staff should be trained to immediately increase ventilation. This might involve opening additional windows and doors, adjusting HVAC settings, or activating targeted fans.

**Operational Practices:**

- **Occupancy Management:** During peak hours or large events, implement strategies to manage the number of patrons to prevent overcrowding and excessive CO2 buildup. Consider reservation systems or timed entry for events.
- **Fresh Air Breaks for Staff:** Encourage staff, especially those working in high-CO2 areas like kitchens, to take regular breaks outside for fresh air. This will help to alleviate any negative health effects from CO2 exposure.
- **Staff Training:** Train staff to recognize the signs and symptoms of CO2 exposure, such as headaches, dizziness, and fatigue. They should also be familiar with the procedures for responding to high CO2 levels, including activating ventilation protocols and notifying management.

**Additional Considerations:**

- If your establishment uses CO2 tanks for carbonation, have a plan for leak detection and response in place. This should include proper storage of tanks, regular leak inspections, and staff training on identifying and responding to leaks safely.
- While not a primary mitigation strategy, air purifiers specifically designed to remove CO2 can be a supplemental solution, particularly in spaces with limited ventilation options.

- If you suspect a CO2 leak or experience symptoms like dizziness, headaches, or shortness of breath, the top priority is to evacuate the affected area as quickly and safely as possible. Encourage patrons and staff to move to a well-ventilated area outside.

## FINAL WORD

CO2 safety is all about maintaining a healthy balance. While CO2 itself isn’t inherently dangerous, improper ventilation can lead to a buildup that displaces oxygen, creating health risks. Remember, fresh air is key to a healthy atmosphere!