

Work Safe Bulletin

Carbon Monoxide

The Cement Finishing Labour Relations Association is an employer organization promoting labour relations, skills training and trade safety in Ontario.

The purpose of this document is to provide specific hazard information and promote discussion of safe work practices.

This bulletin does not contain a full analysis of the law, nor does it constitute a legal opinion. The CFLRA is not liable for any damages resulting from the use of this information.

If you have any questions, please feel free to contact us at 289-837-1627 or by e-mail at safety@cflra.ca

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Background:

Carbon Monoxide (CO) is a poisonous gas that is invisible, tasteless and odorless. CO is produced by all combustion engines and open-flame heaters. **As of July 1, 2016 airborne concentrations of CO must be tested when a combustion engine is operated in any excavation, building or other enclosed structure.**

Hazard:

Exposure to carbon monoxide can lead to headaches, fatigue, loss of consciousness, arrested breathing, heart failure and death.

Recommended Operational Procedure:

Each project has unique characteristics that require careful consideration. It is strongly recommended that this issue be discussed at the preconstruction meeting. To reduce the possibility of an incident, it is recommended that the following be considered:

1. The Occupational Exposure Limits established by Ontario Regulation 833 must be met: 1) 25 ppm time weighted average for an 8 hour work shift (17.5 ppm for a 10 hour shift), 2) 75 ppm Excursion Limit for up to 30 minutes, and 3) a 125 ppm Ceiling Limit.
2. Use carbon monoxide monitors to test the airborne concentrations of CO in the workplace (Alarm 1: 25ppm / Alarm 2: 75ppm).
3. Ensure adequate fresh air and exhaust fume ventilation at all times.
4. Do not use direct fired open flame heaters inside buildings (Ont. Reg. 213 s. 49(5)).
5. Carefully schedule over-lapping trade work to minimize CO accumulation from multiple sources.
6. Minimize or eliminate the operation of gas powered equipment during concreting operations. Minimize the number of concrete trucks inside the building or excavation when possible.
7. Minimize or eliminate fumes by turning off idling engines.
8. Ensure that all engines are tuned to minimize CO emissions. Engine exhaust scrubbers can reduce CO emissions substantially. The use of engine exhaust scrubbers also significantly increases the amount of CO₂ which must be exhausted to avoid "carbonation" of the fresh concrete surface.
9. Cement Finishers should watch for early signs of headache and fatigue.
10. Filtering engine exhaust fumes through water does not reduce the carbon monoxide content of the exhaust.

Further references:

- [Ontario Regulation for Construction Projects.](#)
- [Ontario Regulation 833 Control & Exposure to Biological or Chemical Agents.](#)
- [Occupational Exposure Limits \(Ontario\)](#)