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Continuous monitoring of carbon monoxide, nitroge dioxide and combustible gas in ice rinks

Ice arenas have multiple gas hazards in various locations throughout the facility. At the ice surface level, gasoline, propane, natural gas or sometimes diesel powered equipment such as an ice resurfacer and ice edger produce exhaust composed of carbon monoxide and/or nitrogen dioxide. Other fuel powered equipment such as floor sweepers, lift trucks and other vehicles idling in close proximity can also add to the CO and NO₂ levels. A handheld IAQ monitoring device would provide accurate, reliable gas level readings for the duration of the time the equipment remains running on the surface of the ice.

In the parking/maintenance area for the ice resurfacer there are concerns of possible leaks of propane or natural gas (depending what fuels the ice resurfacer) thus there should be a propane or methane gas detector installed to provide continuous monitoring of these potential gas hazards.

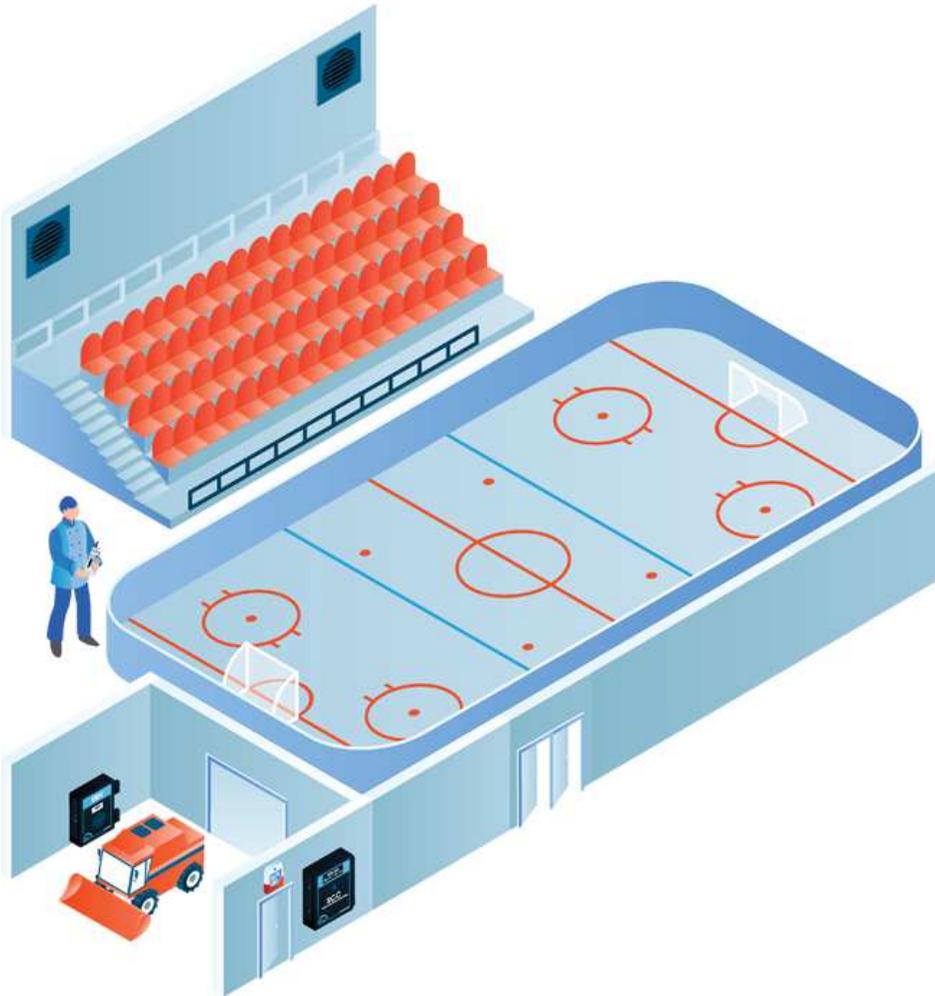
Using Critical Environment Technologies' [YES-AIR](#) IAQ Monitor at the ice level surface and the [SCC](#) Self Contained Controller with the appropriate [ESH-A](#) Remote Sensor in the parking/maintenance area is the solution. At specified alarm levels, the ventilation system can be activated as well as any remote safety devices such as the remote strobe & horn combo.



Continuous Monitoring of Carbon Monoxide (CO), Nitrogen Dioxide (NO₂) and Combustible Gas in Ice Arenas

The SCC Self Contained Controller should be mounted outside the entrance to the Maintenance Equipment room or the area where the ice resurfer is parked. If the ice resurfer is powered by propane, a remote ESH-A with a propane sensor should be mounted inside the room, 6 inches from the floor and near the drain channel, as propane is heavier than air and will accumulate in low lying areas. Being so close to the floor, the ESH-A-C3H8-100 should have a factory installed splash guard to protect the sensor vent from the wet environment of

melting ice and splashing water. If the ice resurfer is powered by natural gas, a remote ESH-A with a methane sensor should be used instead and mounted on or near the ceiling. The ESH-A will be connected to the SCC and in the event of a gas build up in excess of the alarm setpoints, the LEDs on the SCC will change colour from green to amber to red (depending on the alarm level) and the relay will be triggered, which will in turn activate the Remote Strobe / Horn (RSH-24VDC) mounted outside the room and the ventilation fans.



At the ice surface level, a handheld YES-AIR-D Indoor Air Quality monitor with a carbon monoxide and nitrogen dioxide sensor would provide accurate, reliable gas level readings for the duration of the time the equipment remains running on the surface of the ice and/or throughout the occupied periods as per local regulation requirements. The YES-AIR-D comes with an optional plug-in 2GB flash card that will log and store all information

gathered during the monitoring periods. The data can be downloaded to a computer and a report can be generated for further analysis and/or for showing to the local authorities.

NOTE: The gas detection specifications for the ammonia chiller room are not included in the diagram above.