Serving The American Rinks

Rink Issues
03/26/2010, 11:34am (CDT)
By Brandon Klement

Air Testing

RINK ISSUES ■ Air testing

A Breath of Fresh Air

Maintaining clean air starts with being proactive rather than reactive

BY BRANDON KLEMENT

Indoor air quality continues to be one of the biggest safety issues in our industry.

Why do we continue to see the five o'clock news airing stories about poor indoor air quality in ice arenas around the United States? Is it because there is only legislation specific to indoor air quality for ice arenas in three states: Minnesota, Massachusetts and Rhode Island? Is it going to take laws enacted in the other 47 states for ice arena operators to start taking this issue more seriously? Ice arena operators in states without current legislation need to be proactive instead of reactive in this case for the benefit of their employees and customers.

Minnesota has air monitoring rules and regulations in place; however, the Minnesota Department of Health (MDH) is changing its Enclosed Sports Arena Rule. The revisions will continue to help with creating a safer facility for skating activities to take place. The following is an outline of Minnesota's current regulations for air monitoring and testing an enclosed ice arena, and the proposed changes the MDH will present to state law-

Concentrations representing the one-hour average air concentration must be documented by completing air quality testing and the air quality test form. The frequency, action and report for the test must include:

- **Once per week documentation in the Ice Arena Log of Air Quality Testing form stating that the test was performed**
- **Completed at board height at red line**
- **Twenty minutes after second-to-last resurfacing**
- **After maximum use of internal combustion engine (i.e. day with most usage hours)**
- **Records made available to MDH**
- **Quarterly submitting reports due by January 15, April 15, July 15 and October 15**

Concentrations above the minimum levels must be reported by completing and submitting an Air Quality Exceedance Report form to MDH within five days. The following explanations must be included in the report:

- **Why methods to maintain acceptable air quality failed**

and the proposed changes the MDH will present to state law makers in early 2010.

WHAT DOES MINNESOTA REQUIRE PRESENTLY FOR MONITORING AIR QUALITY?

Certification

- **Submit an application to MDH**
- **Have a certificate prior to operation**
- **Post the certificate in a conspicuous place**
- **Apply for a new certificate when the arena has a:**
  - **Change in ventilation or air monitoring equipment**
  - **Change in resurfacing machine**

Air Monitoring

The facility must demonstrate that one-hour air quality conditions can be maintained. One-hour average concentrations of Carbon Monoxide (CO) must be no more than 30 ppm and the one-hour average of Nitrogen Dioxide (NO2) must be no more than 0.5 ppm.

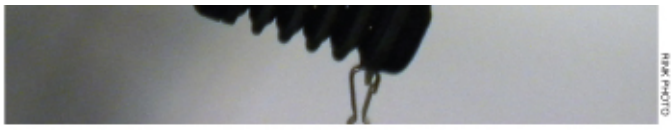
- **Corrective actions taken**
- **Explanation for how to prevent future incidence of unacceptable air quality**

Results of Air Monitoring

- **Acceptable levels of air quality:**
  - Average one-hour CO concentration less than 30 ppm
  - Average one-hour NO2 concentration less than 0.5 ppm
- **Unsafe levels of Ice Arena air quality that will require a Failure Air Quality Report form to be sent to MDH within five days to MDH:**
  - Average one-hour CO levels above 30 ppm
  - Average one-hour NO2 levels above 0.5 ppm
  - Suggested Corrective Action:
    - Turn on exhaust fans
    - Open doors
    - Open the resurfacing room doors to the outside during resurfacing
    - Increase ventilation
    - Reduce the number of times you resurface
    - Reduce the number of times you edge

WHAT IS MINNESOTA PROPOSING FOR CHANGES TO THE PREVIOUS OUTLINE OF AIR MONITORING REGULATIONS?

1. **CO acceptable levels reduced from 30 ppm to 25 ppm**
2. **NO2 acceptable levels reduced from .5 ppm to .3 ppm**
3. **Ice Arenas apply for operation certificate annually**
   Certificate will be granted if:
   - **a.** Facility has functioning air monitoring equipment
   - **b.** Facility has provided staff training as required
   - **c.** Facility has demonstrated the ability to maintain acceptable air quality conditions in the arena
4. **Training Requirements**
   - **a.** Facility must ensure that a trained, responsible person is available at all times that arena is open to the public
     - **i.** Training shall consist of formal instruction, interactive learning, videotape, practical training, and documentation of training
     - **ii.** Training should include acceptable air quality conditions, methods of maintenance of acceptable air quality



- Service the resurfacing machine
- A good guideline to follow and to be sure your facility's air quality is better is to take air quality tests daily. Once five consecutive days of acceptable levels have been reached, then go back to weekly air quality tests

- **Unsafe levels of air quality that will require the Hazardous Materials On-Site Evacuation procedure to be executed:**
  - Average one-hour CO levels greater than 125 ppm
  - Average one-hour NO2 levels greater than 2 ppm

Acceptable Equipment

- **Guidelines:**
  - Leak test pump monthly (see mfg's. instruction manual)
  - Do not use tubes which have expired
  - Only use tubes that were designed for your pump
  - Follow the instructions that come with the tubes
  - Testing procedures are not the same for CO and NO2
- **Gas detector tubes**
  - Conventional
  - Chip Measurement System (CMS)
- **Other methods**
  - Applicant must prove accuracy and reliability of alt. method
  - Need a variance
  - Additional variance requirements

in the arena, proper use, calibration and storage of air monitoring device, proper collection of air samples with air monitoring device, appropriate corrective actions in the event of unacceptable air quality, and record keeping requirements

5. **Measurement of Air Quality Conditions**
   - **a.** Shall be measured once per week after internal combustion engine-powered ice resurfacer is used, once per month after the use of an internal combustion engine-powered ice edger is used
6. **Failure to Maintain Air Quality**
   - **a.** If measurements exceed acceptable levels of 25 ppm of CO or .3 ppm of NO2 then immediate corrective action must be taken and include increased ventilation of arena
   - **b.** If air quality measurements exceed acceptable levels for one hour after testing, then all usage of ice maintenance equipment must be suspended until an acceptable level of air quality can be achieved
   - **c.** Air quality measurements must be made every 20 minutes until a reading is made demonstrating acceptable air quality
   - **d.** Air quality must be measured 20 minutes after the next five uses of ice maintenance equipment, and at least once per day the following three days of arena operation
7. **Evacuation**
   - **a.** Evacuate the arena whenever air quality measurements exceeds 85 ppm CO or 2 ppm NO2
   - **b.** Evacuate when CO exceeds 25 ppm or NO2 exceeds .3

ppm for more than two hours after originally measuring unacceptable air quality conditions

- **c.** Evacuation will consist of evacuating all people from the indoor ice arena, contacting local fire department as soon as possible to assist with evacuation, and contacting the MDH upon completion of evacuation
- **d.** The arena may be re-occupied by the public after evacuation if two consecutive air samples taken indicate acceptable air quality conditions, long-term corrective actions are taken to prevent further incidences, and acceptable air quality conditions and corrective measures are verified by the local fire department or the MDH

8. **Recordkeeping**

- **c.** The records shall be kept in the arena and be available for public and the MDH to review during all hours that the arena is open for use

The Minnesota Enclosed Sports Arena Rule was enacted in

a. The facility shall keep logs to maintain all documentation of air testing and logs shall be labeled with "Air Quality Records"

b. Documents must include:

i. Training Records

ii. Air monitoring records

iii. Air monitoring device operation and maintenance records

iv. Corrective action reports

1973 to protect the public from exposure to exhaust emissions that can occur in ice arenas and enclosed sports arenas when other types of internal combustion engines are being used. The rule is enforced by the Minnesota Department of Health. For more information about this rule go to www.health.state.mn.us/divs/eh/indoorair/arenas/rules.html ★

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Tag(s): HVAC January/February 2010