

Air Quality - a Different Perspective: Two Areas of Concern May Affect Your Arena

by Al Tyldesley, ISI Safety Committee Chairperson

Over the last 10 years rink managers have received a steady stream of information on air quality problems caused by emissions from gasoline and propane fueled ice resurfacers. So much information has been offered that it's hard to imagine an ice rink manager not being up-to-speed in solving this industry-wide problem. While our industry has made much progress in eliminating this source of air quality contamination, we may be overlooking a second and equally important type of air pollution in ice rinks.

Every public building in the U.S. is required to adhere to ventilation codes. The architects, engineers and contractors who build public facilities, including ice rinks, are required by building code laws to install ventilation equipment. This equipment must complete a certain percentage of air replacement, by volume, in a timeframe set by the codes. The requirements of these building codes may vary from state to state and from community to community.

Many states have adopted the national building codes known as BOCA. The ventilation standards in these building codes are usually adopted from an organization called ASHRAE. The American Society of Heating, Refrigeration, Air Conditioning Engineers sets ventilation standards. The mathematical formula used to set the air exchange requirements is based on total building volume and seating capacity.

Ice rinks, by the nature of their business, may present problems in adhering to required air exchange standards. Rinks built 30 years ago may not have ventilation equipment that can meet today's standards. Ice rinks may attempt to reduce or eliminate air exchange in an effort to save money. Rink ventilation equipment may have been covered or blocked off to reduce energy costs. Ventilation equipment is often out of sight, does not receive regular maintenance, and is not repaired when it stops working. Many rink managers view air exchange and ventilation equipment as costing them money with increased energy use.

Recent news is filled with stories of "sick buildings." Construction of air-tight buildings requires ventilation systems that operate at 100 percent efficiency. When the ventilation equipment is not maintained properly, "sick building" syndrome will follow. Ice rinks may be prime candidates for "sick building" syndrome.

The current air quality study, conducted by Dr. John Spengler from the Harvard School of Public Health and Professor Yan Chen from M.I.T., is aimed at this ice rink ventilation problem. Some 10 years ago, Dr. Spengler was involved in identifying the air quality problem from resurfacers in ice rinks. His current project involves studying how ice rinks measure up to required building code ventilation standards. There will be an obvious overlap between air quality problems from ice resurfacers and air quality problems from malfunctioning or non-existing ventilation equipment.

The Ice Skating Institute has joined several other organizations in funding this Harvard/MIT study. We may or may not be happy with the results of the study, but the issue is too important for us to not provide support.

The results of the current ice rink ventilation study will be presented by Dr. Spengler at the ISI Conference and Trade Show in Orlando, FL, May 28-31, 2000. The results of the Harvard/MIT

study will also be presented to ASHRAE with expected future code revisions for ice rinks.

Steps to Ensure Clean Air in Rinks

There are steps you can take to make sure your ice rink is providing the cleanest air possible. First, identify all equipment that is involved with ventilation. It may be in the ceiling, at corners of the rink, hidden behind walls, or in enclosed rooms. Equipment placed out-of-sight must have an opening into the rink that you see as a screen. There must be an air intake from the rink and an air return into the rink. Ventilation equipment draws air from the rink, passes the air through a filter, may mix in outside air, and returns clean air to the rink. While standards may vary, you should expect to replace about 50 percent of the total volume of air in your rink every hour. Ventilation requirements after ice resurfacing may either compound or aid in the over-all ventilation needs.

Because ventilation equipment is often hidden in the rink it usually receives little if any maintenance. Checking drive belts and lubrication of moving parts should be on your monthly maintenance checklist. Filters should be changed on an as-needed basis. Because of the moisture problem in ice rinks ventilation filters may need to be changed every few weeks. Wet filters breed mildew that can lead to "sick building" syndrome.

Ice rinks with desiccant dehumidification systems should know that these systems can be modified to take care of the building's required ventilation needs as well as assist with resurfacing ventilation requirements, and provide a perfectly dry rink. The combination of desiccant dehumidification and ice rink ventilation is truly a marriage made in heaven.

Conclusion

Knowledge of your ventilation system is critical. Monthly maintenance of the equipment is required. Changing filters may be the most important preventive maintenance step you can take. Make sure all air intakes and air returns are clean and have not been covered. If in doubt, call in a professional company that will clean and restore your air ventilation equipment.