



## **Don't hyperventilate!**

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Achieving a building's desirable ventilation rate is important from both an occupant satisfaction and energy consumption perspective. However, achieving the appropriate rate can be an issue. When examining what the 2009 International Mechanical Code Minimum Ventilation Rates require, in comparison to the 2007 Mechanical Code of NYS Required Outdoor Ventilation Air, it is evident that over ventilation in N.Y. has become the standard.

To understand it more clearly, the following case study is examined. In 2010, E&Z provided MEP services for a casino and its associated amenities. By examining the ventilation requirements it was concluded that the 2007 Mechanical Code of the State of N.Y. indicates 30 cfm/person for Gambling Casinos. This ventilation rate is high, and has been used in the past for casinos where smoking is allowed. Based on this ventilation rate, the occupant density and internal loads of the space, the resulting mechanical supply air system would require 80% outdoor ventilation air.

The 2009 International Mechanical Code indicates 7.5 cfm/person and 0.18 cfm/s/f for Gambling Casinos, or 9 cfm/person. Based on this rate, the occupant density and internal loads of the space, the resulting mechanical supply air system would require 20% outdoor ventilation air. Using the Required Outdoor Ventilation Air rates for casinos prescribed in the 2009 International Mechanical Code instead of the rates prescribed in the 2007 Mechanical Code of the State of N.Y. would result in a 35% decrease in required cooling capacity and result in energy savings while providing outside air at rates indicated by ASHRAE 62.1-2004, Ventilation for Acceptable Indoor Air Quality.

What can be concluded is that the rates prescribed in the 2007 Mechanical Code of the State of N.Y. are based on previous International Mechanical Code, which is based on the 2001 version of ASHRAE 62.1. The ventilation rates indicated in ASHRAE 90.1-2004 are lower than the 2001 version of this document and ASHRAE 62.1-2004 makes specific explanation that rates were lowered as they address non-smoking spaces only.

Furthermore, ASHRAE 62.1-2001 notes that for bars, cocktail lounges, and casinos, supplemental smoke removing equipment may be required, thus illustrating that smoking is considered in the 2001 version of the standard.

N.Y.C. Code has similar issues. The 2008 N.Y.C. Mechanical code is based on the 2000 International Mechanical Code, which is based on ASHRAE 62.1-1996, a time smoking was still a factor. This calls for office spaces to provide 20 cfm/person. When then examining ASHRAE 62.1-2004 for comparison, this updated version calls for less than 10 cfm/person. With the recent standards calling for less than half the cfm/person, it is clear that the current code is based on an outdated standard.

With this knowledge the industry should look to improve and resolve this discrepancy, in order to have satisfied occupants as well as increased energy savings. For the time being, it is advisable to ask the code official for a variance to use an updated standard.

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