

## **Executive Summary:**

The purpose of this report is to evaluate a two story 45,000 sf athletic workout facility in Houston, TX for its compliance with the ASHRAE Standard 62.1-2004 minimum ventilation rates. Standard 62.1's scope also specifies guidelines for acceptable indoor air quality. This standard was written to avoid the adverse health effects that arise from poorly designed mechanical systems. The addition of addendum 'n' to this standard makes the data more site specific because it is based off of not only number of occupants, as previous drafts were, but also includes factors such as floor area, efficiency of ventilation, mixing of air, and function of the space.

The ventilation rate procedure was utilized to find the results contained in this report. It was assumed that air mixes perfectly in these calculations. Most of the air handlers in the building serve only one zone, thus eliminating an important zone primary air fraction ( $Z_p$ ) from most calculations, and there was an occupant diversity of 1.0 as gathered from the MEP design documents.

The building's mechanical system is served by 13 packaged rooftop units. These are constant volume air handling units that operate with supply airflows ranging from 3,500-10,500 cfm. There is currently a total supply of 84,400 cfm consisting of 19.4% outdoor air for ventilation purposes. According to Standard 62.1-2004, the building requires 20.9% outdoor air if the same total supply cfm is used; however, only 3 of the 13 rooftop units in this building meet their individual requirement for the spaces they serve. This suggests that although approximately enough outdoor air is being brought into the building, the distribution of the outdoor air may need to be reevaluated to avoid future ventilation problems.