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Link Category Title

OSHA Heat Stress Document

http://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_4.html

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Industrial Ventilation Systems



Commercial Baking facilities are demanding when it comes to the design and construction of Industrial Ventilation Systems and requires attention to various facets including occupant comfort, heat stress, air filtration, building pressurization to prevent infiltration of insects, molds and other particulates as well as providing airflow that promotes efficient bakery equipment operations.

Energy costs associated with these systems can represent a large portion of the annual utility cost and poorly designed systems, many of which may have evolved over the years by adding a fan here or there, and not looking at the “big picture” can many times quadruple required energy use. In recent years more of an emphasis has been placed on occupant comfort and various companies have started to mechanically cool areas that have operators present and in some instances the entire plant. Options include mechanical cooling both centralized and self-contained designs; direct and indirect evaporative measures; large volume air exchange that is many times is combined with mechanical spot cooling in operator areas as well as a combination of the aforementioned.

Occupational Safety and Health Administration (OSHA) has regulations in place that govern occupant heat stress based on measuring Wet Bulb Globe Temperature (WBGT). This measurement is time weighted based on space temperature including radiant conditions from ovens, etc. as well as humidity and assigns a specific condition for compliance based on operator work load and dress requirements.

Heating is accomplished with a variety of methods but typically natural gas direct and indirect fired heating is used to condition outside (makeup) air used to replace exhaust loads and create a positive pressure. The use of direct fired combustion provides higher efficiencies than indirect-fired units sometimes as high as 15% although recent advances have allowed some manufacturers to provide indirect fired efficiencies that closely approach direct-fired. Supply air systems should include air filtration assigned with a Minimum Efficiency Rating Value (MERV) that provides significant ability to remove a majority of the mold sized particles. It is very important to control ventilation systems in a building in unison as a system, and not independently to maintain proper space pressurization and to assure that energy costs remain in control.

For more information on Industrial Ventilation System options or to have an audit performed at your existing facility please contact us.