MechSE *WELL*ness

A03 Ventilation Effectiveness

Intent: Prevent indoor air quality issues via providing adequate ventilation.

Poorly ventilated spaces contribute to headaches, fatigue, dizziness, nausea, cough, sneezing, shortness of breath, and eye, nose, and skin irritation. This is known as “sick building syndrome”, a topic tackled by MechSE alum Alexander Butkus way back in 1995! Poor ventilation also leads to increased rates of absences, higher operational costs, and decreased productivity and cognitive ability.

Impact: Proper design and operation of a ventilation system provides a healthy building for occupants!

Requirements for the Sidney Lu Mechanical Engineering Building:
1. Facility design meets or exceeds the American Society of Heating, Refrigeration, Air Conditioning Engineers (ASHRAE) standards for ventilation and indoor air quality.
2. Both air systems were balanced to ensure that ventilation to each room meets the ASHRAE standard whenever the space is occupied.

How do we accomplish these requirements? During the design of the facility, careful attention was given to meet ASHRAE 62.1, the national building standard for ventilation for acceptable indoor air quality. Room by room calculations were made to determine the minimum quantity of ventilation air required. The facility also adopted ASHRAE 36 guideline for advanced sequences of operation for air handling units, which continuously re-calculates the ventilation required in each space and overall to both enable the best indoor air quality while reducing energy usage. Additionally, it continually uses auto fault detection and diagnostics (AFDD) to compare values and auto-generate alarms to facilities to maintain the ventilation system. During construction, a firm was hired to visit each space and properly balance all of the airflows to ensure proper ventilation and commission the control monitoring system. Everyday Lu MEB will have the best air quality possible enabling the highest level of cognitive ability.

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