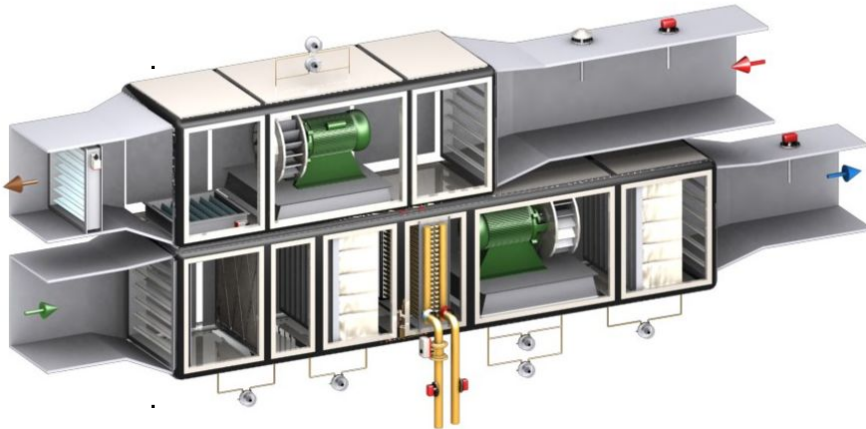


# HVAC Systems Operational Summary Sheet

## *Buildings with Centralized Systems*

### SYSTEM DEFINITION

The term *Centralized Systems* describe those systems with large, central air handling units. This description includes constant volume units, variable volume units, and multi-zone units. *Centralized Systems* make up most of the types of HVAC systems in USC buildings.



### SYSTEM OPERATION & OCCUPANCY

The term Outdoor Air (or Ventilation Air) describes the minimum amount of fresh outdoor air required for the purpose of controlling contaminant levels in buildings. USC's *Centralized Systems* are designed to exceed the fresh Outdoor Air supply rates required by the ASHRAE Ventilation Standards and the California Mechanical Building Code at the time they are designed. Outdoor air flow rates are established by utilizing the maximum anticipated occupant count for the building. Many of the buildings at USC do not experience the maximum occupant counts for which they were designed. With the current social distancing measures, the occupancy counts will be further reduced, resulting in higher per person outdoor air supply rates.

"Normally scheduled operating hours" describes when the *Centralized Systems* turn on in the morning and off at night. Typically, these hours are between 6am and 10pm Monday through Friday. In order to flush the entire building prior to and after occupancy, the *Centralized Systems* will be operating beyond their normally scheduled times. Using outdoor air to flush the building will help dilute building contaminants.

Existing energy efficiency measures intended to reduce energy consumption by varying the outdoor air rates in proportion to actual occupant loads will be de-activated. This will ensure that outdoor air rates remain as consistent and as high as possible, resulting in the largest possible ratio of fresh air to recirculated air in each building.

### AIR CHANGE RATE (ACH)

Air Change Rate describes the measure of the air volume added to, or removed from, a space divided by the volume of the space. Air Changes per Hour (ACH) is a measure of how many times the air within a defined space is replaced.

The Air Change Rates in buildings with *Centralized Systems* are determined when the system is first designed. They are primarily based on providing the maximum supply airflow needed to meet the individual space cooling needs or to compensate for laboratory equipment exhaust requirements, whichever is greater. The resultant Air Change Rates may vary greatly amongst buildings, and even amongst individual spaces within the same building. Associated air handling equipment capacity is set during system design by these calculated cooling loads.

### FILTRATION

The term MERV stands for the Minimum Efficiency Reporting Value and is used to measure air filter efficiency. Higher MERV ratings translates to a filter that is more efficient in capturing particles in the air. Filter ratings range from MERV-1 to MERV-16. The filters in USC buildings with *Centralized Systems* range from MERV-14 to MERV-16. Currently, there is no verified case of transmission of the COVID-19 virus by means of droplets travelling over large distances, such as through air conditioning ductwork systems.

