# SE- Overview of Air Handling & Filtration

Updated, July 16, 2020

## What is SE doing in response to the COVID-19 pandemic?

- Reviewed intakes throughout the system to plug gaps and holes to avoid air bypassing filters.
- Where feasible, looked to increase "fresh" air from 90/10 currently used in most buildings.
- In areas where systems cycle on/off, will keep on constantly during peak usage times.
- Where possible, adjusted system settings during the overnight hours so more fresh air is brought into the buildings.
- Increased filters from MERV 10 to MERV 13 in locations where possible. This would apply to areas where negative impact on systems would be minimal.
- Ask faculty & staff to report rooms and locations that may contain "stagnate" air.
- Purchased several portable filtration units for deployment to problematic areas.

## What filters are currently used?

- MERV 10 filters are used throughout the Durant & McCurtain County campuses.

## When are filters changed?

- DURANT – Filters and air flow are monitored remotely through a series of sensors. Once the static pressure begins to fluctuate outside the system's "normal" range, a sensor is triggered noting that the filter needs to be inspected and possibly replaced.
- IDABEL – As the system is not computer monitored, they are changed on a quarterly basis.

## Can a higher MERV rated filter be used? What impact on systems would that have?

- Yes, SE could use a higher MERV rating filter but with increased filtration, comes its own set of unique challenges. Changes in filter MERV ratings would impact air flow through the system possibly reducing efficiency. In addition, that impact on air flow may cause some system components including motors and air handlers to overheat and malfunction. MERV 10 filters already cause issues such as condensation on air flow grates in at least one building.

## What is the air ratio or recirculated to fresh or outside air?

- SE uses the industry specific/public building standard of a 90/10 mix - 90% recirculated to 10% fresh. With this mixture, the air in all spaces will be replaced with fresh outside air multiple times in a 24-hour period.

## Can this mixture be changed? What impact would that have on the system? Utility bills?

- Yes, the system could be changed to allow for more "fresh" air during system runs.
- The increase in mixture is not without issues. During temperature swings such as the heat of summer or a chilly winter, more energy would be needed to heat or cool the air to the desired internal temperature.

## Describe the air handling process.

1. The supply air is mixed and then flows through a MERV 10 filter system as it goes into a supply air duct.
2. The supply air is pushed through a series of supply ducts to individual VAV…variable air volume, devices that are located at each room, zone, or office area individually and are computer controlled by the thermostats in each room.
3. The amount of air that flows through the VAV and into a room is determined by the thermostat setting.
4. Once the room is filled with the filtered air from the VAV it flows through a return air duct in that specific room and back to the Air Handler.
5. At this point 90% of this air is mixed with 10% outside fresh air and the process repeats. This keeps the air from becoming stagnate.

## How is the entire system monitored?

- DURANT – The Siemens control system is monitored 24/7- 365 days a year. If there is an alarm or the system fails, staff with the physical plant are notified immediately. This system monitors 10,405 control points.
- IDABEL– MCC is not computer monitored.

## Does SE test for air quality?

- Yes. The University's Environmental Health and Safety (EHS) Office tests the air regularly and maintains the logs. The latest summer and recommendation from EHS is below.

- Indoor Air Quality (IAQ) Report Summary from Chief of EHS Steve Harman for both the Durant and McCurtain County Campuses conducted during the last six months.
    - The CDC and OSHA standards are 1000 PPM (parts per million) of CO2 or bad air. Our average shown on the base line at MCC is 368 to 356 PPM. At the main campus, the base line is 420.47 PPM. It is the opinion of EHS that being that far below the standard, the University is in an excellent situation. When tested, the humidity level is acceptable as well. There are no recommendations for changes at this time unless an unusual situation was detected during regular monitoring.

## Who do I contact for more information?

- General HVAC System Questions
    - Dan Simmons, Director Physical Plant
    - dsimmons@se.edu
    - 580-745-2839
- Air Quality Testing & Results
    - Steve Harman, Chief of Environmental Health and Safety
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