

VAV Systems

Control Sequence
Affects the Entire HVAC
System Energy Use

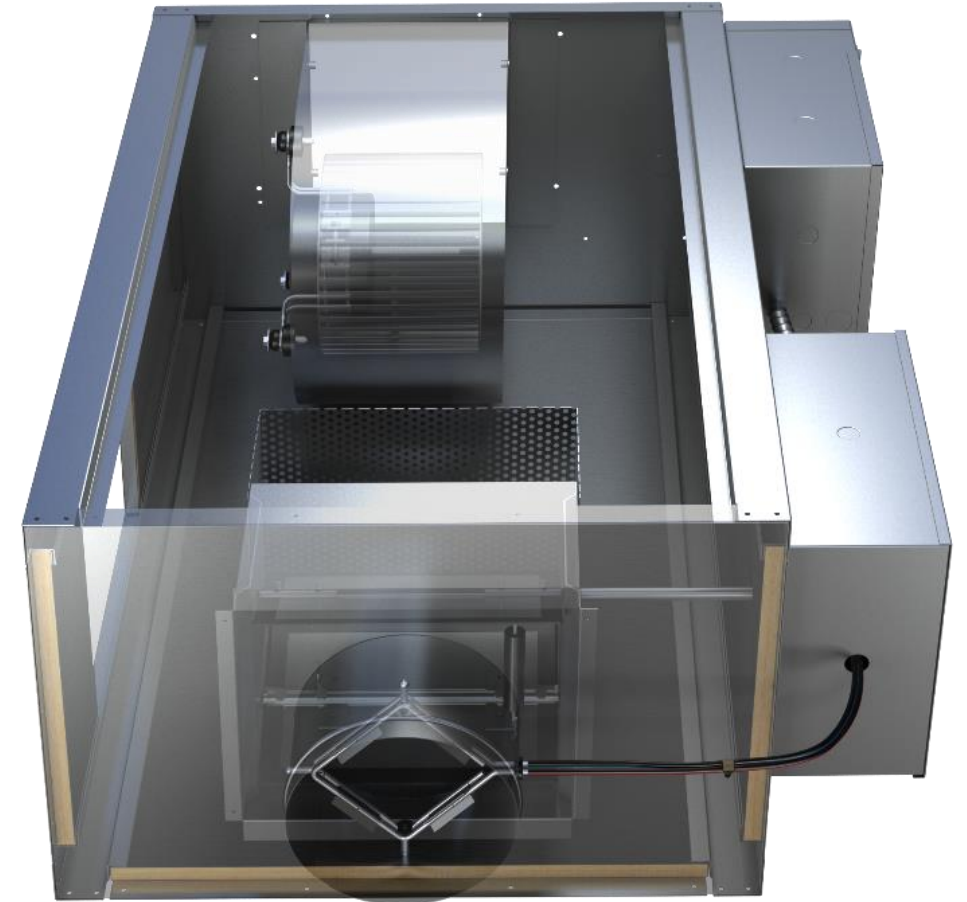
TECHNICAL AIR SYSTEMS, INC.
A Comfortable Choice

 **Nailor**[®]



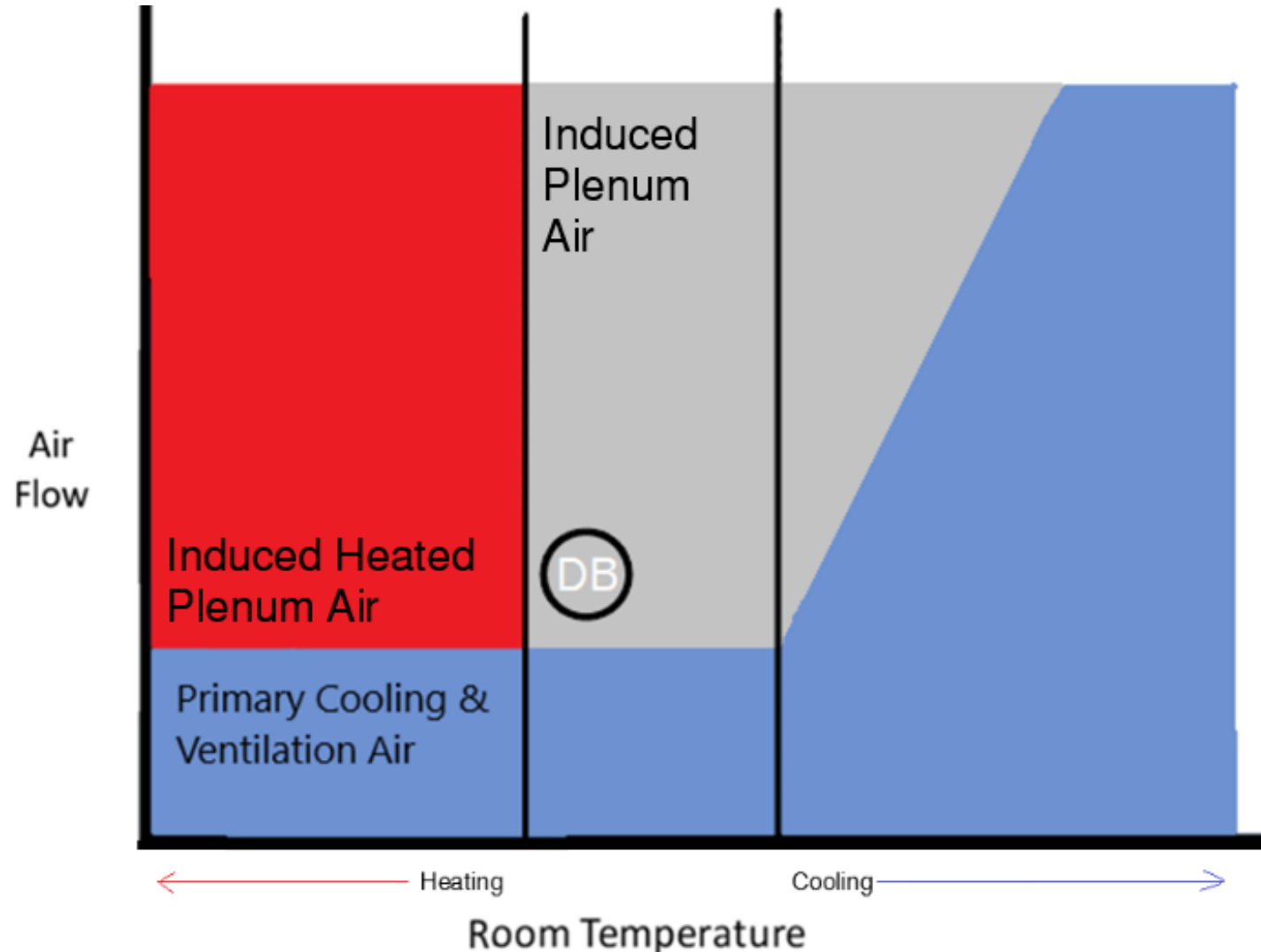
Series Fan Powered Terminal Units

- Series Fan Powered Terminal Units contain a fan that is in the primary airflow.
- The fan is operational when the AHU is working.
- In heating, the fan will induce plenum air so the primary airflow can be reduced to the minimum ventilation rate.
- How these units are controls can greatly reduce energy use for the building.



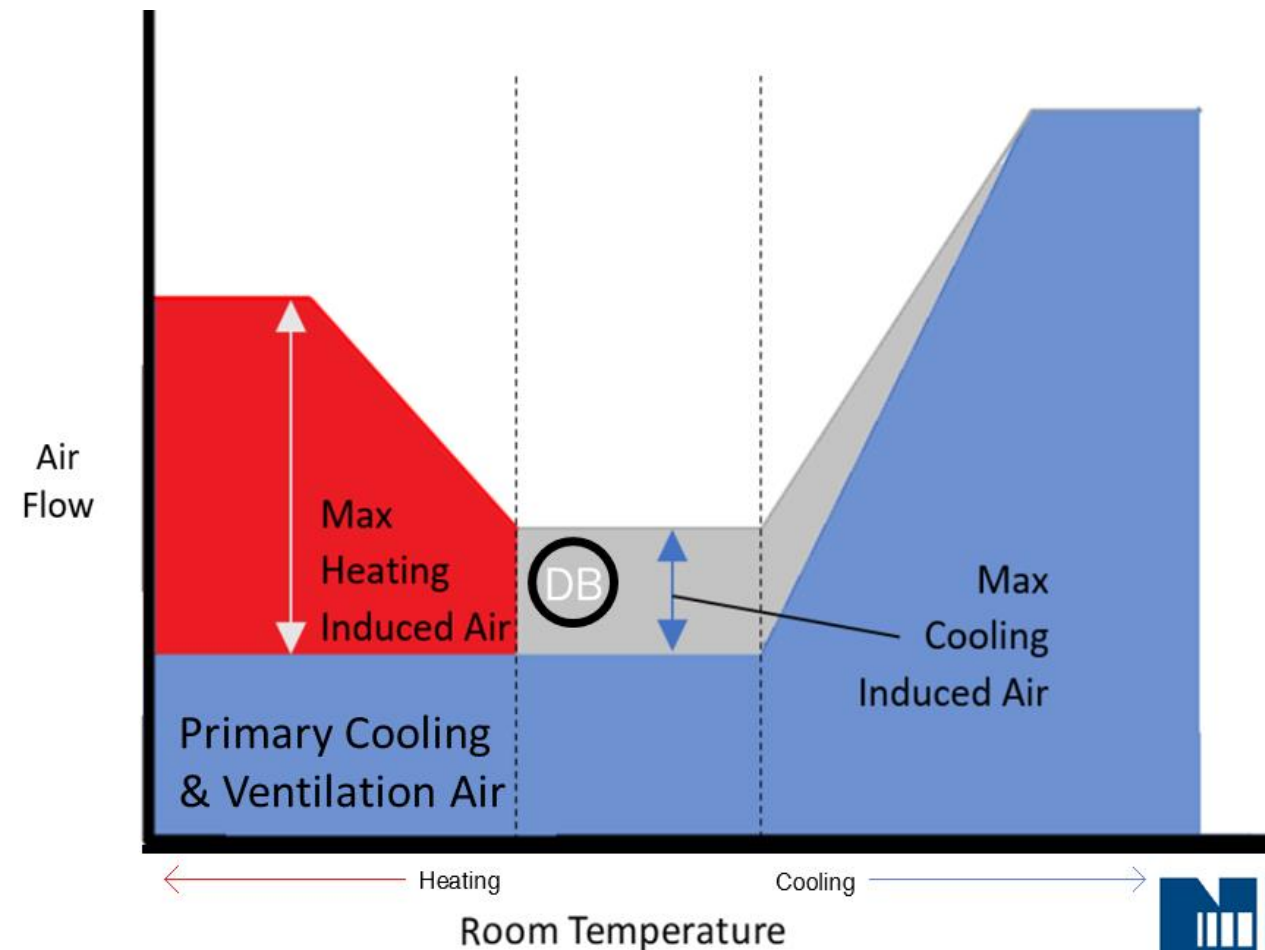
Constant Volume Control Sequence

- Historically Series Fan Powered Terminal units were known as constant volume boxes,
- This legacy control sequence kept the airflow from the unit at a constant rate regardless of demand in the space
- The temperature in the space was control by modulating the primary airflow or the heating.
- ASHRAE Study RP-1515 proved that constant airflow is not required for occupant comfort



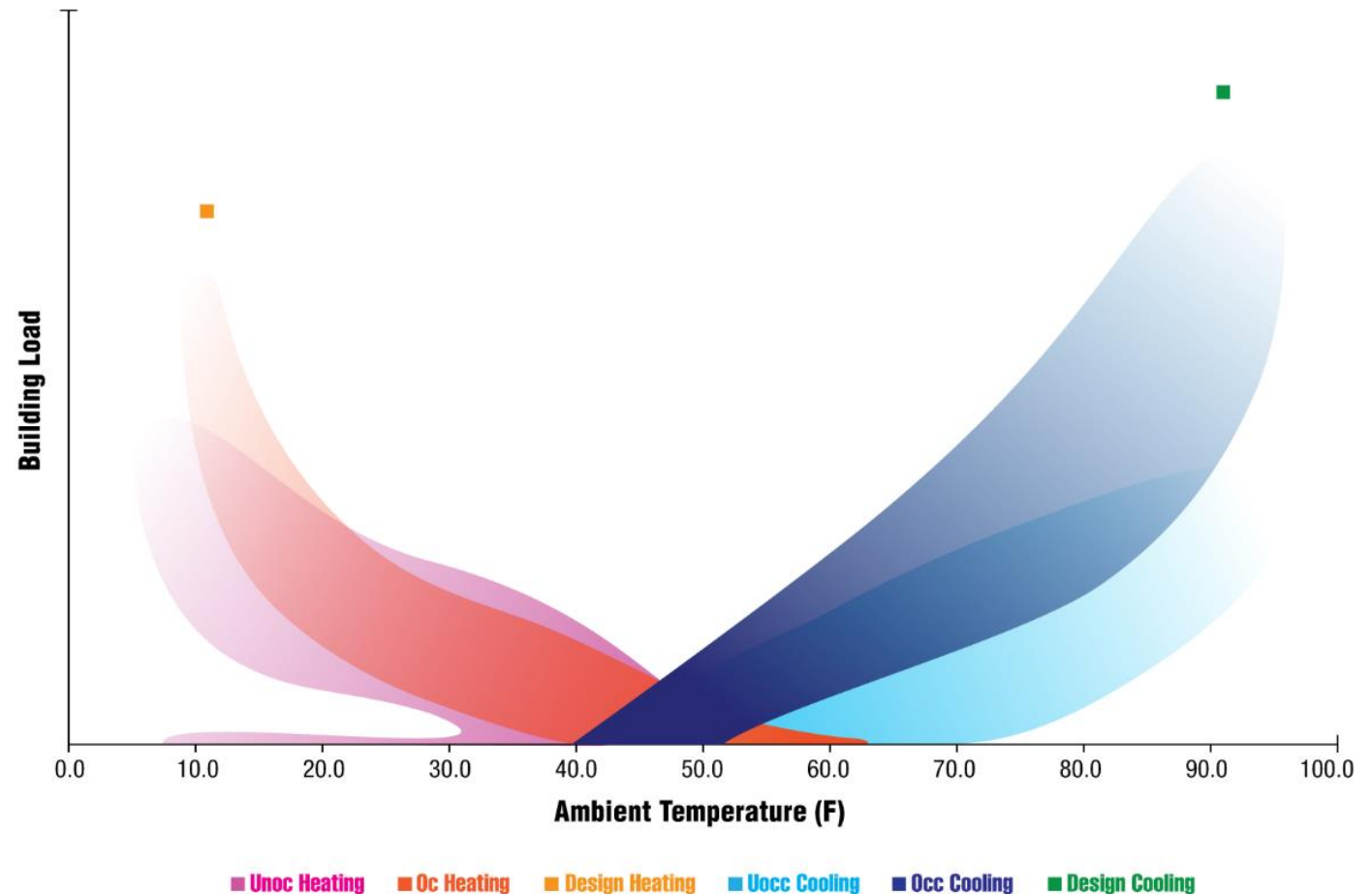
Variable Volume Control Sequence

- With Variable Controls the fan in the Terminal Unit tracks the primary supply in cooling and the heating coil in heating.
- This reduces the amount of plenum air induced into the airflow, and therefore the amount of primary air required for the space.
- Reducing the fan energy and the amount of primary air optimizes energy use across the entire HVAC system.

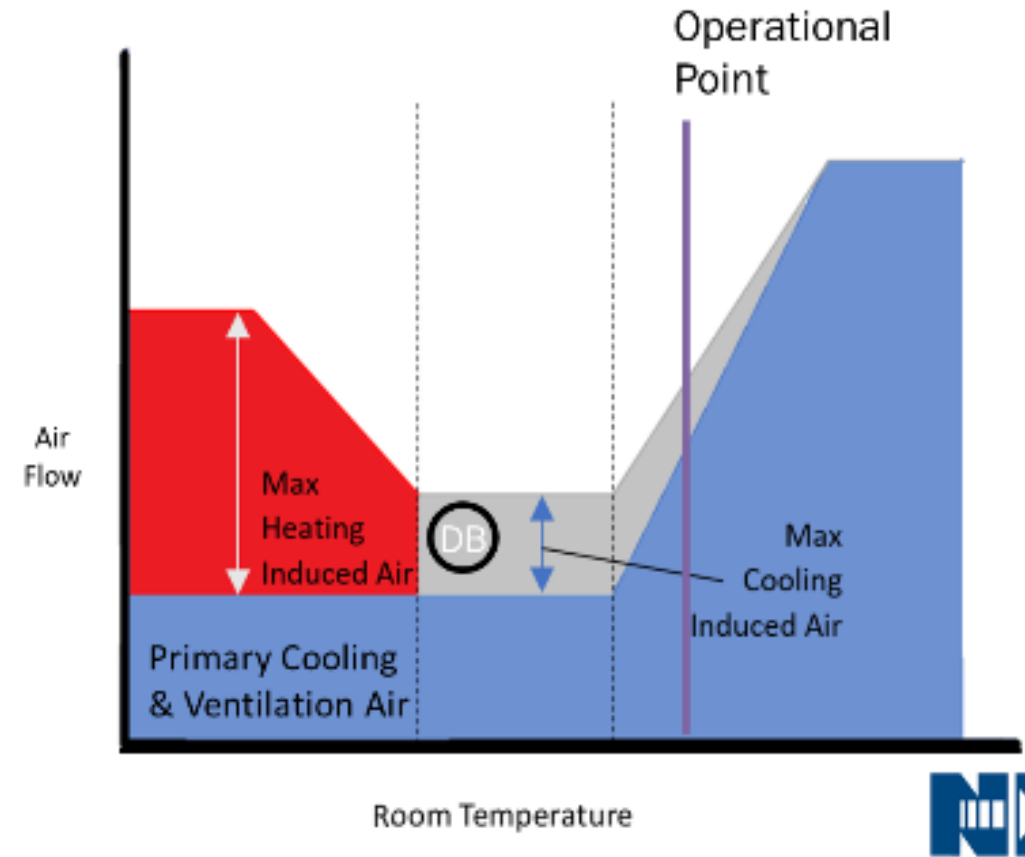
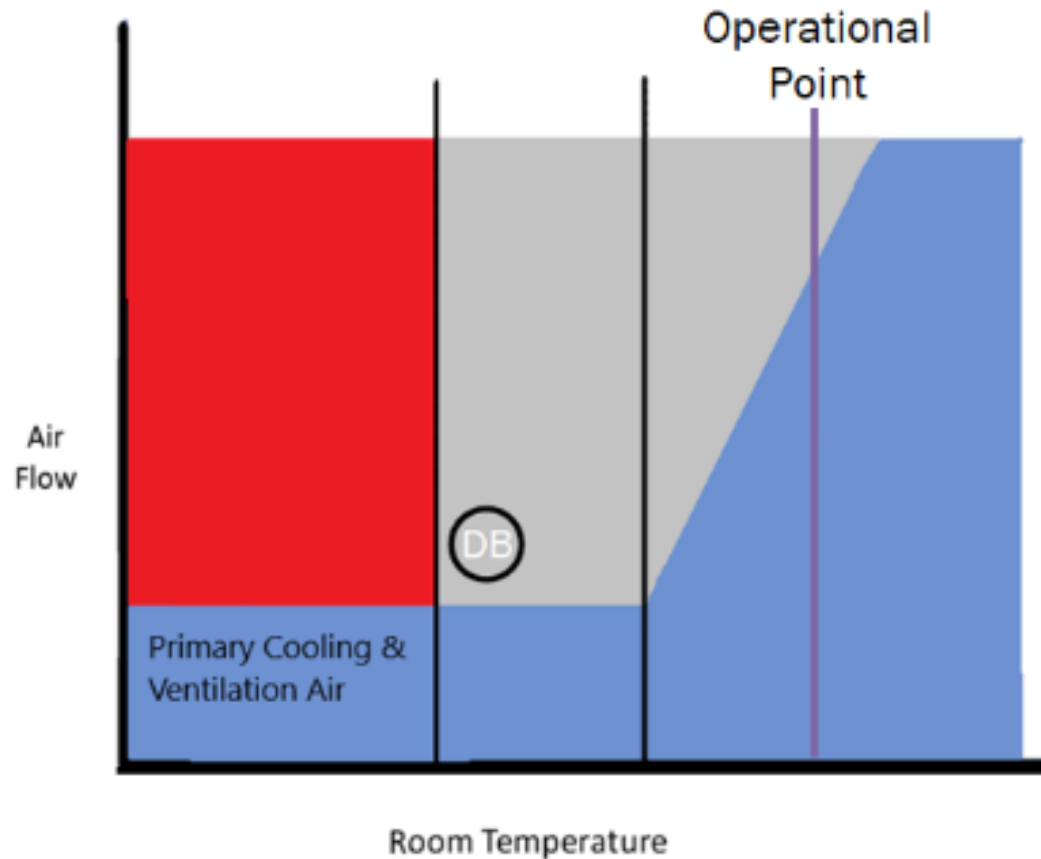


Building Loads Vary Constantly

- 50% of cooling days are at or below 50% of design cooling load
- 80% of heating days are at or below 30% of design heating load
- Choosing a control sequence that more closely matches the actual demand throughout the year is going to increase occupant comfort and reduce energy usage.



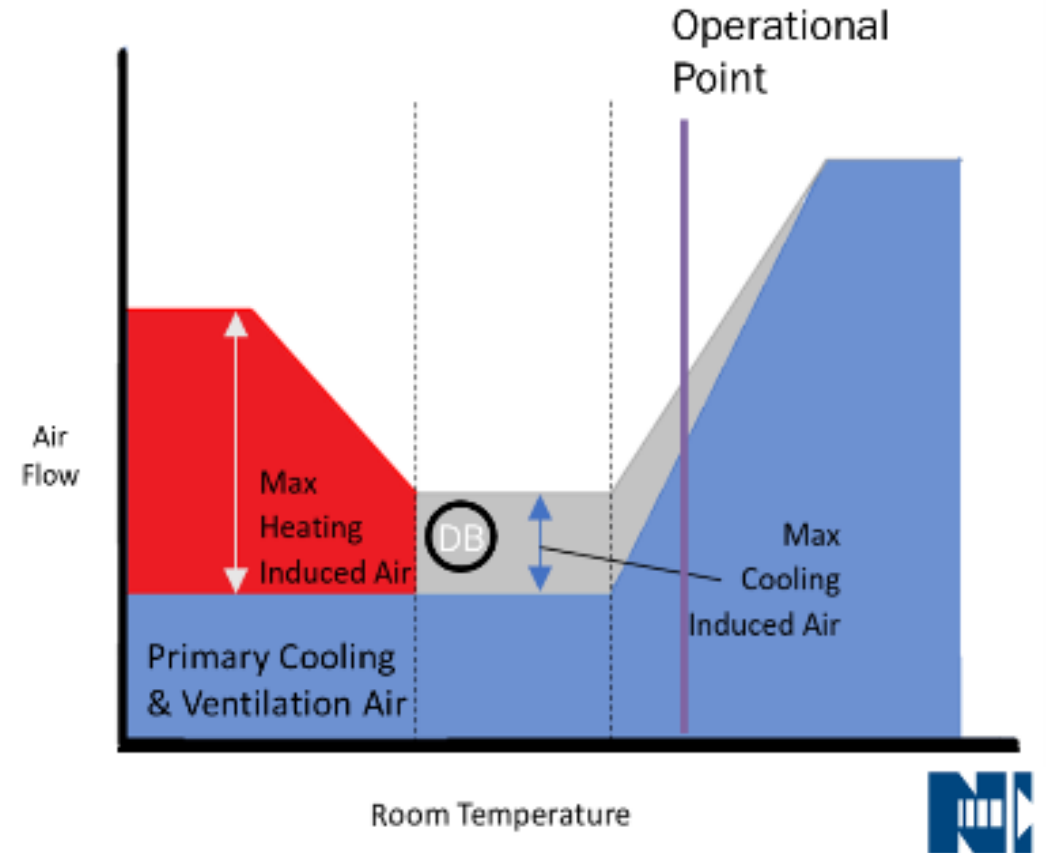
Constant Vs. Variable



All things kept equal, a terminal unit with a constant volume sequence will require more primary air to satisfy a space than a variable volume sequence

Save Energy across the Entire System

- More primary air requires more chilled water, higher AHU fan speeds, and more fan energy at the terminal unit.
- Choosing a variable control sequences reduces the overall energy use of the entire HVAC system.



Contact the Experts

- Learn more about Nailor Industries, Inc. entire air handling/ air distribution line by going to <http://www.technicalair.com/nailor>
- Contact the Technical Air Systems' Sales Engineering Team at **973-285-0333** or by email at solutions@technicalair.com
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