

Central Heating and Cooling Systems



Central Cooling

Chillers supply chilled water to air handling units and other equipment for space cooling.

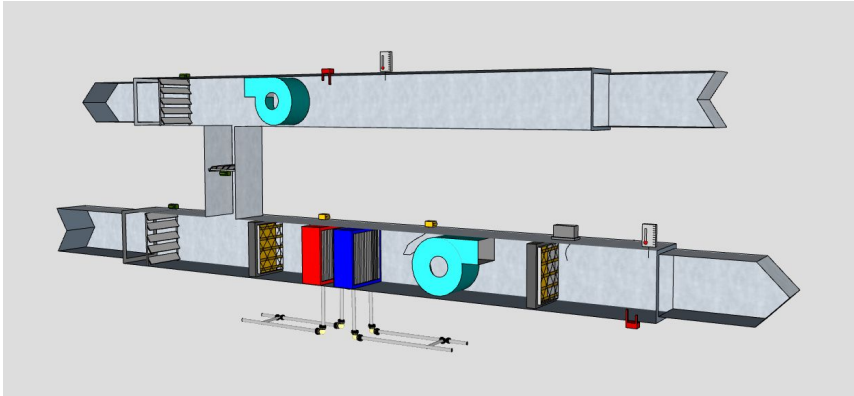


Central Heating

Boilers supply heating water to air handling units and other equipment for space heating.



Standard Air Handling Unit Layout





DOAS

Dedicated outdoor air systems (DOAS) are HVAC systems that are neither centralized nor decentralized. They are designed to provide fresh, conditioned outdoor air to buildings independently from the space conditioning, ensuring optimal indoor air quality and energy efficiency.



Makeup Air Units

Makeup air units are decentralized HVAC systems that supply outside air to the facility, heating it through direct-fired gas burners or controlling the temperature with heat exchangers, and are commonly employed in commercial kitchens for ventilation air replacement.



Backdraft Dampers

Backdraft dampers prevent air from flowing back into ventilation systems. They allow air to flow in one direction while preventing reverse airflow, which is particularly important in exhaust systems to prevent the entry of unwanted outdoor air. Mounted horizontally or vertically, backdraft dampers can be powered by a motor or operated manually. The typical location for a backdraft damper is at the discharge of an exhaust fan or inlet of an individual fan of a fan array.

Fire-Rated Diffuser

Fire-rated diffusers have a rated ceiling. They prevent fire and smoke from spreading through ventilation openings in fire-rated floor-ceiling or roof-ceiling assemblies. Fire-rated diffusers are activated by heat and are commonly installed in exit passageways.

VAV vs CAV

VAV



regulate the flow by adjusting the supply air volume



uses a variable frequency drive on the fan to adjust airflow



more energy efficient

CAV



maintain minimum air temperature requirements



uses a constant airspeed to supply a fixed amount of air



less energy efficient