

Sample for Controls Spec, 23 0901

The following control capabilities/strategies shall be incorporated into the controls sequences.

VAV Systems:

- Electric control throughout the system – no pneumatic controls
- TOD Schedule available on all major devices, controlled by third party room scheduling system where available (eg the NU Registrar's room scheduling platform)
- Warm-up/cool-down modes
- Enthalpy-based economizer
- CO2 based demand ventilation control
- SA Temp setpoint reset on reheat and damper positions
- SA static setpoint reset based on damper position
- Static sensors located at end of longest duct to monitor the worst-case condition
- Return fan tracking based on duct static, flow station, or building pressurization
- Return/exhaust damper positioning based on RF discharge static, or volume offset as measured by flow station in return duct. All building exhaust should be accounted for in calculation.
- Circ pumps on HHW preheat coils shall be activated on OAT
- Economizer damper control to meet MAT setpoint, reset based on SA setpoint
- Preheat and CHW control to SA temperature setpoint
- 2-way control valves
- Humidifier only in lab buildings or other special use areas
- Dedicated OAT sensor per unit (or building depending on the layout of the air handling units)
- Temperature sensors shall be combination T/RH where possible: SA, MA, Preheat discharge, OA, RA. Provide averaging sensors for adequate coverage where necessary.
- Humidifier discharge setpoint reset based on return setpoint, capped at 80%
- Downstream humidity sensor alarms at 90% and closes humidifier valve
- Extreme cold weather program to maintain positive pressure in building if OA drops below an adjustable setpoint temperature.

Room VAV sequence – Max cool -> min cool -> min heat w/reheat -> max heat w/reheat -> max heat w/reheat & perimeter (where perimeter valve is controlled by room controller)

Perimeter valves shall open to a minimum position when OA drops below an adjustable setpoint temperature.

Specific to labs, provide demand control ventilation where appropriate to reset lab ACH. Control strategy shall be based on an air sampling system (e.g., Aircuity)

Provide lab-level pressurization controllers.

Alarms – refer to DDC standards.

At a minimum, alarm:

- High duct static
- Freeze stat (manual reset, instantaneous trip)
- Fan status
- Pump status
- Filter alarm
- VFD Fault
- Fire Alarm (through FACP)
- Preheat low discharge temperature
- Discharge air temperature
- Discharge humidity level
- Return air humidity level
- Extreme zone temperatures

HHW Systems:

Provide separate loops for reheat and perimeter

Provide 1/3-2/3 valve control on steam stations (1/3 valve to be normally open, 2/3 normally closed)

Reset reheat HHW setpoint based on OAT or space level valve positions

Reset perimeter setpoint based on HHW return temp, zone space temp, or valve positions.