Benefits of 2-position valve control in Vertical Stacked Fan Coils

We're all familiar with the energy efficiency and comfort advantages of variable flow hydronic systems over constant flow but are efficiency or comfort compromised when using 2-position control valves on vertical stacked fan coils or any single zone terminal units? The short answer is "no" to both. ASHRAE 90.1 2022 stipulates variable speed ECM fans on the terminal units so we can still modulate the heating or cooling to the space to maintain a precise temperature with 2-position valve control. Besides, modulating low hydronic flows, 0.5 – 5.0GPM, is not easily achieved.

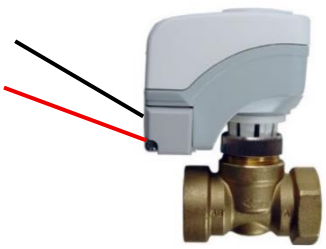
2-position control valves are less expensive, more reliable and require a less expensive thermostat than proportional control valves and most comfort applications don't require precise flow to maintain the zone setpoint. 2-position control still allows us to take advantage of the load diversity between the zones to achieve the energy savings.

Another advantage of 2-position valve control on a vertical stacked fan coil unit is the additional dehumidification benefit in cooling mode. The thermostat will modulate the ECM fan to minimum speed, reducing the off-coil temperature to remove more grains of moisture before closing the valve when setpoint is reached. This reduces the zone RH with no occupant discomfort from the lower supply air temperature due to the low air velocity (<50FPM).

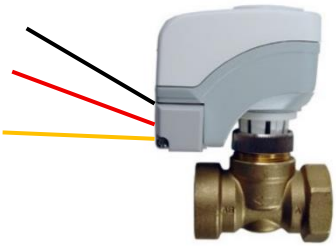
Summary

Using modulating control on vertical stacked fan coils in complex and sprawling systems like university campuses may be considered where pressure independent control is required but 2-position valve control provides comfort, and energy efficient operation at a lower cost in most simple hydronic systems.

Consult Temspec sales support for more guidance on terminal unit control in single zone systems. #2positioncontrol #energyefficiency #variableflow #singlezonesystem #verticalstackedfancoil



2-position control valves use a binary control signal (24VAC) and perform well in most simple hydronic comfort heating/cooling systems



Proportional control valves use an analog control signal and should be considered in complex systems where more precise control is needed or pressure independent control