

Building Energy Asset Score: Building Upgrade Guide¹

BUILDING HVAC CONTROL SYSTEMS

Implementing control strategies and/or adding equipment controls may significantly improve the efficiency of the heating and cooling systems in a building.

Heating/Cooling

Asset Score Report Recommendations:

Implement Demand Controlled Ventilation (DCV)

Cost: \$\$

HVAC control system hardware with the ability to implement demand controlled ventilation reduce energy use by reducing the quantity of outdoor air supplied to the space during periods of low occupancy (while still maintaining proper per-occupant outdoor ventilation).

Implement Fan Static Pressure Reset

Cost: \$

For systems with direct digital controls of individual zone boxes reporting to the central control panel, the static pressure setpoint should be reset based on the zone requiring the most pressure (i.e., the setpoint is lowered until one zone damper (of many dampers) is nearly wide open). Adding hardware to implement this control algorithm will reduce fan energy use by preventing over-pressurization in the duct for the given demand conditions.

Implement Supply Air Temperature Reset

Cost: \$

Multiple zone HVAC systems should include hardware to support controls that automatically reset the supply-air temperature in response to changes in building loads or outdoor air temperature. The controls should typically reset the supply air temperature by at least 25% of the difference between the design (or prescribed) supply-air temperature and the design room air temperature.

¹ The complete Asset Score Building Upgrade Guide is available at:

https://buildingenergyscore.energy.gov/assets/energy_asset_score_recommendations_guide.pdf

Lower VAV Box Minimum Flow Setpoints

Cost: \$

With VAV systems, reducing the zone supply airflow during periods of low cooling and heating load will result in measurable energy savings at the central equipment. During periods of no heating and cooling, VAV boxes must still deliver air to the zones in order to provide ventilation air for the occupants. Often this minimum airflow rate is set higher than needed. Energy savings can be realized by lowering the minimum airflow rate to a level that still provides adequate ventilation air for the occupants, but will result in reduced fan and reheat energy used by the system.