Maintenance Tips
Economizer Operation and Control

The economizer operation sequence is intended to eliminate mechanical cooling when the outside air temperature (OAT) is lower than the Makeup Air Handling Unit (MAU) discharge temperature set point (DAT-SP).

Also, the Economizer Operation will decrease mechanical cooling energy consumption when the OAT is lower than return air temperature (RAT), typically less than 70°F. The Economizer operation controls the DAT by modulating the Outside Air damper when:

1. OAT is lower than DAT-SP – eliminate mechanical cooling energy consumption.
2. OAT is lower than RAT – minimize mechanical cooling energy consumption

Note: The Economizer operation requires lower outside air temperature and humidity therefore is available during the months with lower cooling requirements. As a result it is strongly recommended to implement a DAT-SP reset based on OAT (example – if DAT-SP for mechanical cooling is 55°F, for Economizer mode the DAT-SP should vary between 55°F and 60°F).
The higher DAT-SP should satisfy the shoulder season cooling requirements and will eliminate unnecessary heating demand; the DAT should satisfy cooling demand to maintain the expected comfort level while reducing the cooling and heating energy consumption.

Recommended Steps:

3. Test return air, mixed air and outside air dampers operation (Monitor damper's operation while overriding at BAS the damper position to 0%, 100%, 75%, 50% and 25%). Remove BAS override to restore normal operation. Repair or replace defective actuators.
4. Integrate economizer control with optimal cold deck temperature reset – contact your BAS Service provider and/or building mechanical consultant to establish the DAT-SP reset limits based on OAT
5. Test Economizer mode – work with BAS service contractor to establish a test procedure and test the Economizer mode under various OAT.
6. Set-up BAS trends to monitor performance. Ask BAS Service provider to set-up on the same chart trends for OAT, MAT (mixed air temperature setpoint should be 1°F to 2°F lower than DAT-SP), DAT-SP, DAT, and OA damper control point.
7. Test Freeze-stat operation; use an ice cube to cool down the freeze-stat sensor to trip the freeze protection and confirm at BAS the reported AHU Freeze-stat Alarm. Reset Freeze-stat to restore operation.

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