

How to use this document: Operations and maintenance (O&M) best practices can save money on energy and maintenance costs and improve reliability, safety, and return on investment. These best practices focus on *writing things down, making things routine, and having what you need*. In other words, these practices include documenting energy-efficient methods for equipment and systems operations in standard operating procedures; incorporating these methods into maintenance routines, checklists, and schedules; and having necessary tools, supplies, and replacement parts on hand. These practices can help operations, maintenance, and facilities managers and staff realize and sustain energy savings.

Use or adapt this sample document at your own facility or workplace to build support for, plan, or implement the energy-saving O&M best practice described. Find more guidance on using this document and additional information on energy-efficient O&M strategies and practices in “Online Courses” at SEMHub.com.

STANDARD OPERATING PROCEDURE

Maximizing Free Economizer Cooling

DO NOT use this equipment unless you have been trained and assessed to a competent level in its safe use and operation, and have been given permission to use this equipment.



Safety glasses must be worn at all times when servicing HVAC equipment.



Hearing protection must be worn where noise levels are in excess of the 85 dB(A) occupational exposure limit.

Economizer checkout: Once annually prior to cooling season

1. Notify appropriate personnel that the AHU is being serviced before starting work.
2. Ensure outside air intake screen is clean of debris and other restrictions.
3. Ensure unit damper functionality by checking outside air damper, return air damper, and exhaust air damper operations. Inspect each damper for binding, proper stroke and position proportional to each other, and ability to completely open and close.
 - Locate the outside air damper on the HVAC unit. It should be visible from the outside under the economizer rain hood.
 - Shut the power off to the unit at the HVAC disconnect and watch the outside air damper. It should close slowly, and you may be able to hear the actuator motor.
 - *Refer to manufacturer's recommended checkout procedure to verify the on-board economizer controller and actuator is working properly.*

4. Inspect blade gasketing, if present, for integrity and flexibility. Replace if damaged.
5. Review economizer sequence and verify operations.
 - Ensure that economizer is fully open before calling for mechanical cooling when outside air temperature (OAT) is less than 72°F OR below the return air temperature by 2°F.
 - *Adjust economizer controller if necessary.*
 - *If economizer is NOT fully open to outside air before calling for mechanical cooling, troubleshoot and repair.*
 - *Verify OAT sensor is working correctly and reporting accurately. A failed OAT sensor may always keep the economizer at minimum outside air position.*
 - Ensure economizer is at minimum outside air position when AHU calls for heat. (Discharge Air temperature setpoint is above Outside Air temperature.)
 - *Adjust economizer controller if necessary.*
 - *If economizer is NOT at minimum outside air position when calling for heat, troubleshoot and repair.*
6. Ensure minimum outside air damper position is aligned with balancing/commissioning report.
 - Review balancing/commission report and record minimum outside air requirements here: _____

Note: Most packaged economizers use dry-bulb temperature for control. For enthalpy economizers substitute optimal enthalpy for outside air temperature and follow same tasks.