

NA7.5.4 Air Economizer Controls

NA7.5.4.1 Construction Inspection

Prior to Functional Testing, verify and document the following:

- (a) Economizer high limit shutoff control complies with Table 140.4-E of Section 140.4(e)2.
- (b) If the high-limit control is fixed dry-bulb or fixed enthalpy + fixed dry-bulb, it shall have an adjustable setpoint.
- (c) Economizer lockout control sensor is located to prevent false readings.
- (d) Sensor performance curve is provided by factory with economizer instruction material.
- (e) Sensor output value measured during sensor calibration is plotted on the performance curve.
- (f) Economizer damper moves freely without binding.
- (g) Economizer has control systems, including two-stage or electronic thermostats, that cycle compressors off when economizers can provide partial cooling.
- (h) Economizer reliability features are present as specified by Standards Section 140.4(e)2D.
- (i) Economizer inlet damper is designed to modulate up to 100 percent open, and return air damper to 100 percent closed, without over-pressurizing the building.
- (j) For systems with DDC controls lockout sensor(s) are either factory calibrated or field calibrated.
- (k) For systems with non-DDC controls, manufacturer's startup and testing procedures have been applied.
- (l) The economizer has been certified to the Energy Commission as specified by Section 140.4(e)2Diii.

NA7.5.4.2 Functional Testing

Step 1: Disable demand control ventilation systems (if applicable).

Step 2: Enable the economizer and simulate a cooling demand large enough to drive the economizer fully open. Verify and document the following:

- (a) Economizer damper is 100 percent open and return air damper is 100 percent closed.
- (b) All applicable fans and dampers operate as intended to maintain building pressure.
- (c) The unit heating is disabled (if unit has heating capability).

Step 3: Disable the economizer and simulate a cooling demand. Verify and document the following:

- (d) Economizer damper closes to its minimum position.
- (e) All applicable fans and dampers operate as intended to maintain building pressure.
- (f) The unit heating is disabled (if unit has heating capability).

Step 4: If unit has heating capability, simulate a heating demand and set the economizer so that it is capable of operating (i.e. actual outdoor air conditions are below lockout setpoint). Verify the following:

- (g) The economizer is at minimum position.
- (h) Return air damper opens.

Step 5: Turn off the unit. Verify and document the following:

- (i) Economizer damper closes completely.

Step 6: Restore demand control ventilation systems (if applicable) and remove all system overrides initiated during the test.