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.