## **Section 5 – Demand Control Ventilation (DCV) Operation**

## Ventilation Verification and Energy Optimization Assessment

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|  | **Verify DCV Operation** |

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| Step | Passing this test verifies the DCV and associated CO2 sensor operates as designed. | Results |
| 1 | Prior to functional testing, record the following: |  |
| a. | Disable economizer controls. |  |
| b. | Set CO2 concentration setpoint at 800 ppm or less.[[1]](#footnote-1) | ppm |
| 2 | Simulate a signal at or slightly above the CO2 concentration setpoint required (Step 1c). |  |
| a. | Apply CO2 calibration gas at a concentration at or slightly above the setpoint to the sensor. | ppm |
| b. | For single zone units, verify that the outdoor air damper modulates open to satisfy the total required ventilation air. called for in the Mechanical Schedule. | P/F/NA |
| c. | For multiple zone units, the zone damper (or outdoor air damper when applicable) modulates open to satisfy the zone ventilation requirements. | P/F/NA |
| 3 | Simulate signal well below the CO2 setpoint. |  |
| a. | Apply CO2 calibration gas at a concentration well below the setpoint to the sensor or ventilate the sensor as necessary. | ppm |
| b. | For single zone units, outdoor air damper modulates to the design minimum value. | P/F/NA |
| c. | For multiple zone units, the zone damper (or outdoor air damper when applicable) modulates to satisfy the reduced zone ventilation requirements. | P/F/NA |
| 4 | Verify DCV operation with economizer |  |
| a. | Restore economizer controls and remove all system overrides initiated during the test. |  |
| b. | Apply CO2 calibration gas at a concentration slightly above the setpoint to the sensor. | ppm |
| c. | Verify that the outdoor air damper modulates open to satisfy the total ventilation required air. | P/F |
| 5 | Remove all system overrides initiated during the test and return system to normal operation. |  |

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| Y/N | **DCV functions as designed with a setpoint of 800** | |
|  | **If No, and the DCV requires adjustment or repairs:**   * Document Required Repairs and Adjustments * Document information required for a repair or adjustment (i.e. measurements, model, serial, etc.) | |
|  | * Include relevant photographic documentation |  |
| If the demand control ventilation system does not maintain average daily maximum CO2 levels below 1,100 ppm, it shall be disabled until such time as the LEA determines that the COVID-19 crisis has passed, unless disabling the control would adversely affect operation of the overall system. | | |

*This document is intended to be used solely as an aide when developing the methods, procedures, and forms used in the Ventilation Verification and Energy Optimization Assessment.  It is the responsibility of each contractor, supervisor, and technician to ensure that the methods, procedures, and forms used meet the requirements of the local mechanical codes.  The National Energy Management Institute Committee makes no representations, whatsoever, that drafting procedures or forms based on this document will meet that requirement of local mechanical codes and expressly disclaims any liability or responsibility regarding the use of this document.*

1. The CO2 set point of 800 ppm is recommended by the UC Davis Western Cooling Efficiency Center. The purpose of the 800 ppm set point for demand control ventilation systems is to prevent the automated control system from overshooting a maximum 1,100 ppm CO2 concentration. [↑](#footnote-ref-1)