

ENGINEERING REPORT

TOPIC: Code Requirements for the IAQ50, AMS50, CD60, CD50, CDTI50, and CD40 Type Dampers

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Table 403.3 of the IMC

Section 1202 of the *International Building Code* (IBC) covers **Ventilation** requirements. This section covers outside air opening requirements and references the *International Mechanical Code*. Chapter 4 of the *International Mechanical Code* (IMC) governs ventilation of spaces within the occupied portions of a building. Minimum ventilation rates are identified in Table 403.3 of the *IMC* Table 403.3 of the *IMC*.

Here is what it says in Section 403 of the IMC regarding ventilation systems as part of VAV systems:

- Ventilation systems shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied.
- The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3 (Note, Table 403.3 in the IMC identifies the cfm/sq. ft. for various building and zone types).
- Variable air volume air distribution systems, other than those designed to supply 100% outdoor air, shall be provided with controls to regulate the flow of outdoor air. Such control systems shall be designed to maintain the flow of outdoor rate of not less than that required by Section 403 over the entire range of supply air operating rates.

This means that any outside air damper that is part of a VAV system must have a control scheme that maintains the minimum ventilation CFM throughout the supply fan operating range during occupied hours. This simply means that no outside air damper that is part of VAV system can be installed with anything but a control package similar to that of the Ruskin IAQ50, AMS50, or the EAML.

International Energy Conservation Code

In addition to providing a tracking mechanism for maintaining outside air, the HVAC designer must be conscientious of energy codes as well. A leakage criterion exists for dampers that are integral to the building envelope. More than half of the states have adopted the *International Energy Conservation Code* (IECC), referenced by the IBC. The IECC states that dampers integral to the building envelope shall be equipped with motorized dampers with a maximum leakage of 3- cfm/sq. ft. at 1.0 inch w.g. when tested in accordance with AMCA 500.

Ruskin commercial control dampers that meet the IECC leakage requirement are:

- AMS50
- IAQ50
- CD50
- CD504
- CDTI50
- CD40
- CD403
- CD40x2
- CD60

All of these dampers are tested in accordance with AMCA 500. All of these dampers leak less than 3 cfm/sq. ft. at 1" of static pressure.

Additionally, Ruskin manufactures a cadre of heavy-duty industrial dampers that meet these leakage requirements as well.

Conclusion

Ruskin manufactures outside air damper products that meet the latest code requirements for both leakage, as well as the control and maintenance of outside air ventilation standards during occupied hours.