

6.2.7.1.1 For DCV zones in the occupied mode, breathing zone outdoor airflow (V_{bz}) shall be reset in response to current population.

6.2.7.1.2 For DCV zones in the occupied mode, breathing zone outdoor airflow (V_{bz}) shall be not less than the building component ($R_a \times A_z$) for the zone.

Exception: Breathing zone outdoor airflow shall be permitted to be reduced to zero for zones in occupied standby mode for the occupancy categories indicated in Table 6.2.2.1, provided that airflow is restored to V_{bz} whenever occupancy is detected.

6.2.7.1.3 Documentation. A written description of the equipment, methods, control sequences, setpoints, and the intended operational functions shall be provided. A table shall be provided that shows the minimum and maximum outdoor intake airflow for each system.

6.2.7.2 Ventilation Efficiency. Variations in the efficiency with which outdoor air is distributed to the occupants under different ventilation system airflows and temperatures shall be permitted as an optional basis of dynamic reset.

6.2.7.3 Outdoor Air Fraction. A higher fraction of outdoor air in the air supply due to intake of additional outdoor air for free cooling or exhaust air makeup shall be permitted as an optional basis of dynamic reset.

6.3 Indoor Air Quality (IAQ) Procedure. Breathing zone outdoor airflow (V_{bz}) shall be determined in accordance with Sections 6.3.1 through 6.3.5.

6.3.1 Contaminant Sources. Each contaminant of concern, for purposes of the design, shall be identified. For each contaminant of concern, indoor sources and outdoor sources shall be identified, and the emission rate for each contaminant of concern from each source shall be determined. Where two or more contaminants of concern target the same organ system, these contaminants shall be considered to be a contaminant mixture.

Informative Note: Informative Appendix C provides information for some potential contaminants of concern, including the organs they affect.

6.3.2 Contaminant Concentration. For each contaminant of concern, a concentration limit and its corresponding exposure period and an appropriate reference to a cognizant authority shall be specified. For each contaminant mixture of concern, the ratio of the concentration of each contaminant to its concentration limit shall be determined, and the sum of these ratios shall be not greater than one.

Exception: Consideration of odors in determining concentration limits shall not be required.

Informative Notes:

1. Odors are addressed in Section 6.3.4.2.
2. Informative Appendix C includes concentration guidelines for some potential contaminants of concern.

6.3.3 Perceived Indoor Air Quality. The design level of indoor air acceptability shall be specified in terms of the percentage of building occupants, visitors, or both expressing satisfaction with perceived IAQ.

6.3.4 Design Approach. Zone and system outdoor airflow rates shall be the larger of those determined in accordance with Section 6.3.4.1 and either Section 6.3.4.2 or 6.3.4.3, based on emission rates, concentration limits, and other relevant design parameters.

6.3.4.1 Mass Balance Analysis. Using a steady-state or dynamic mass-balance analysis, the minimum outdoor airflow rates required to achieve the concentration limits specified in Section 6.3.2 shall be determined for each contaminant or contaminant mixture of concern within each zone served by the system.

Informative Notes:

1. Informative Appendix E includes steady-state mass-balance equations that describe the impact of air cleaning on outdoor air and recirculation rates for ventilation systems serving a single zone.
2. In the completed building, measurement of the concentration of contaminants or contaminant mixtures of concern may be useful as a means of checking the accuracy of the design mass-balance analysis, but such measurement is not required for compliance.

6.3.4.2 Subjective Evaluation. Using a subjective occupant evaluation conducted in the completed building, the minimum outdoor airflow rates required to achieve the level of acceptability specified in Section 6.3.3 shall be determined within each zone served by the system.

Informative Notes:

1. Informative Appendix C presents one approach to subjective occupant evaluation.
2. Level of acceptability often increases in response to increased outdoor airflow rates, increased level of indoor or outdoor air cleaning, or decreased indoor or outdoor contaminant emission rate.

6.3.4.3 Similar Zone. The minimum outdoor airflow rates shall be not less than those found in accordance with Section 6.3.4.2 for a substantially similar zone.

6.3.5 Combined IAQ Procedure and Ventilation Rate Procedure. The IAQ Procedure in conjunction with the Ventilation Rate Procedure shall be permitted to be applied to a zone or system. In this case, the Ventilation Rate Procedure shall be used to determine the required zone minimum outdoor airflow, and the IAQ Procedure shall be used to determine the additional outdoor air or air cleaning necessary to achieve the concentration limits of the contaminants and contaminant mixtures of concern.

Informative Note: The improvement of indoor air quality through the use of air cleaning or provision of additional outdoor air in conjunction with minimum ventilation rates may be quantified using the IAQ Procedure.

6.3.6 Documentation. Where the IAQ Procedure is used, the following information shall be included in the design documentation: the contaminants and contaminant mixtures of concern considered in the design process, the sources and emission rates of the contaminants of concern, the concentration limits and exposure periods and the references for these limits, and the analytical approach used to determine ventila-