

Healthcare HVAC Design: ASHRAE 170 Ventilation Requirements, Pressure Relationships, and Air Changes

THE DIRECT ANSWER

In U.S. hospital design, minimum ventilation for most clinical spaces starts with ANSI/ASHRAE/ASHE Standard 170, usually adopted through the Facility Guidelines Institute (FGI) and enforced by your authority having jurisdiction (AHJ), CMS Conditions of Participation, and accreditors such as The Joint Commission. For each space, 170 speaks in two air-change numbers—minimum outdoor air changes per hour (ACH) and minimum total ACH—plus the required pressure relationship (positive, negative, or neutral) to adjoining areas.

WHERE ASHRAE 170 SITS IN YOUR COMPLIANCE STACK

- Standard 170 is the ventilation chapter most facility managers meet in the field as FGI, state hospital codes, and project specifications. The 2026 FGI Codes incorporate ANSI/ASHRAE/ASHE Standard 170-2025 for minimum ventilation; many jurisdictions still enforce earlier FGI/170 pairs on existing buildings.

READING TABLE 7-1: OUTDOOR ACH, TOTAL ACH, AND PRESSURE

- Pressure relationship —positive (air flows out), negative (air flows in), or equal/neutral where allowed.
- Minimum total ACH —supply-based changes per hour for the room volume.
- Minimum outdoor ACH —fresh air portion; the balance may be recirculated only where the table permits.
- Exhaust, recirculation, filtration, temperature, and humidity —space-specific; do not assume one OR row applies elsewhere.

FIELD QUESTION

What air change rates does a general operating room need under ASHRAE 170?

Under the commonly enforced Table 7-1 values for a general (Class B) operating room, plan for at least 4 outdoor ACH and 20 total ACH, with positive pressure to adjoining spaces. Specialty OR categories listed in the standard may add diffuser array and airflow pattern requirements. Always confirm the edition your AHJ adopted—numbers and filtration notes shift between editions.

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Caution: codes, editions, and targets vary by facility and authority having jurisdiction (AHJ). Figures marked as common practice are facility targets, not code requirements. Confirm against your AHJ and the current code text before acting.

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