TABLE 2: HVAC DESIGN PARAMETERS[1,2]

Functional area	Minimum outdoor air changes per hour	Minimum total air changes per hour*	Humidity	Temperature	Settings for airflow patterns (pressure)
Operating room	4	20	20% to 60%	68° F to 75° F (200 C to 240 C)	positive
Soiled workroom/ decontamination room	2	6	NR	72° F to 78° F (22° C to 26° C)	negative
Sterilizer equipment access	NR	10	NR	72° F to 78° F (22° C to 26° C)	negative
Preparation and packaging/clean workroom	2	4	Maximum 60%	72° F to 78° F (22° C to 26° C)	positive
Clean/sterile storage	2	4	Maximum 60%	72° F to 78° F (22° C to 26° C)	positive
Restroom/ housekeeping	NR	10	NR	NR	negative
Postanesthesia care unit	2	6	20% to 60%	70° F to 75° F (21° C to 24° C)	NR
Procedure room	3	15	20% to 60%	70° F to 75° F (21° C to 24° C)	positive
Gastrointestinal endoscopy procedure room	2	6	20% to 60%	68° F to 73° F (20° C to 23° C	NR
Gastrointestinal endoscope cleaning room	2	10	NR	NR	negative
Semi-restricted corridor	NR	NR	NR	NR	NR

NR = No recommendation
** Total air changes per hour is the sum of the outdoor air changes plus the recirculated air changes.*

REFERENCE
1. Facility Guidelines Institute, US Department of Health and Human Services, American Society for Healthcare Engineering. Guidelines for Design and Construction of Hospitals and Outpatient Facilities. *Chicago, IL: American Society for Healthcare Engineering of the American Hospital Association; 2014.*
2. Centers for Medicare & Medicaid Services. State Operations Manual Appendix A—Survey Protocol, Regulations and Interpretive Guidelines for Hosp... *Rev. 78; 2011.*

rates of air changes. One OR had an air change rate of 23 ACH and the other OR had a rate of 15 ACH. The comparison revealed that the OR with 23 ACH had lower levels of particulate matter in the air. The researchers concluded that a higher air change rate may reduce microbial contamination in the OR.[66]

Perdelli et al measured airborne microbial concentrations in various environments including ORs in 10 hospitals in Saudi Arabia. They found that the fungal concentration was lower inside the building compared to the outside environment. The fungal concentration levels were the lowest in the ORs that were equipped with HEPA filters (efficiency = 99.97%), had at least 15 ACH, and had positive pressure.[67]

IV.c.1. The ACH in a restricted area should be ... tained at 20 total changes per hour, ... minimum of five air changes of outdo... per hour or at the rate that was applica... the time of design or of the most recen... vation of the HVAC system.[7]

IV.c.2. The ACH in a semi-restricted are... related to the function performed i... area:

- clean/sterile storage—4 total and ... door air changes
- soiled workroom/decontamination ... 6 total and 2 outdoor air changes
- sterilizer equipment access—1... and no recommendation for outd... changes[7]