

2.5-3.1.2.1 All occupied rooms and areas in the facility shall have provision for continuous ventilation.

2.5-3.1.2.2 Although natural ventilation (via operable windows) shall be permitted, mechanical ventilation shall be provided for all rooms and areas in the facility.

2.5-3.2 Mechanical System Design

2.5-3.2.1 Efficiency

The mechanical system shall be subject to general review for operational efficiency and life cycle cost.

***2.5-3.2.1.1** Recognized engineering procedures shall be followed for the most economical and effective results.

***2.5-3.2.1.2** In no case shall resident comfort or safety be sacrificed for energy conservation.

***2.5-3.2.1.3** Facility design consideration shall include site, building mass, orientation, layout, fenestration, and other features relative to passive and active energy systems. See the following sections for additional information:

- (1) Section 1.2-5.5 (Planning for Sustainability)
- (2) Section 1.4-2.2 (Sustainable Design)
- (3) Section 2.2-2 (Sustainable Design Criteria)

2.5-3.2.2 Air-Handling Systems with Unitary Equipment That Serves Only One Room

See Table 2.5-5 (Maximum Design Criteria for Noise

in Interior Spaces Caused by Building Systems) for noise considerations.

2.5-3.2.3 System Valves

Supply and return mains and risers for cooling, heating, and steam systems shall be equipped with valves to isolate the various sections of each system. Each piece of equipment shall have valves at the supply and return ends.

*2.5-3.2.4 Acoustic Considerations for Outdoor Mechanical Equipment

2.5-3.2.4.1 For requirements for outdoor mechanical equipment and noise and vibration mitigation, see Section 2.5-8.2 (Site Exterior Noise) and Section 2.5-8.7 (Design Criteria for Building Vibration).

2.5-3.2.4.2 Outdoor mechanical equipment shall not produce sound that exceeds daytime and nighttime noise limits at neighboring properties as required by local ordinance.

2.5-3.3 HVAC Requirements for Specific Locations

2.5-3.3.1 Resident, Participant, Outpatient, and Related Support Areas

See common element and facility chapters in Parts 3 through 5 for any requirements in addition to those in this section for resident, participant, and outpatient areas and their support areas.

It may be practical in some areas that include operable windows to reduce mechanical ventilation and use open windows for ventilation during appropriate climatic conditions as long as resident comfort needs can be met.

2.5-3.2.4 Acoustic considerations for outdoor mechanical equipment. Outdoor mechanical equipment includes cooling towers, rooftop air handlers, exhaust fans, fans located inside buildings with openings on the outside of the building, and other equipment. Special acoustic considerations for the building envelope in residential health, care, or support facility areas near such equipment may be required to mitigate noise. The effects of mechanical equipment noise on adjacent properties should also be considered, with attention to adjacent land uses and jurisdictional noise limits.

APPENDIX

A2.5-3.2.1.1 A well-designed system can generally achieve energy efficiency with minimal additional cost and simultaneously provide resident comfort.

A2.5-3.2.1.2 See ANSI/ASHRAE Standard 55-2010: *Thermal Environmental Conditions for Human Occupancy* for thermal comfort information.

A2.5-3.2.1.3 Centralized air-handling systems should be designed with an economizer cycle in areas where it is appropriate to use outside air. See ANSI/ASHRAE/IES Standard 90.1-2010: *Energy Standard for Buildings Except Low-Rise Residential Buildings* for additional information. Resident needs and/or operational function should be evaluated as primary concerns and energy consumption and efficiency as secondary concerns.