

**405.0 Evaporative Cooling Systems.**

Evaporative cooling systems shall comply with this chapter.

Evaporative cooling systems shall be provided with outside air as specified for cooling systems in this code.

Air ducts and fire dampers that are a portion of an evaporative cooling system shall comply with this code.

**405.1 Location.**

Evaporative cooling systems shall be installed so as to minimize the probability of damage from an external source.

**405.2 Access, Inspection, and Repair.** Evaporative coolers shall be accessible for inspection, service, and replacement without removing permanent construction.

**405.3 Installation.**

An evaporative cooler supported by the building structure shall be installed on a substantial level base and shall be secured directly or indirectly to the building structure by suitable means to prevent displacement of the cooler.

Modifications made to the supporting framework of buildings as a result of the installation shall be in accordance with the requirements of the Building Code. Openings in exterior walls shall be flashed in an approved manner in accordance with the requirements of the Building Code.

An evaporative cooler supported directly by the ground shall be isolated from the ground by a level concrete slab extending not less than three (3) inches (76 mm) above the adjoining ground level.

An evaporative cooler supported on an aboveground platform shall be elevated at least six (6) inches (152 mm) above adjoining ground level.

**Example:** Determine the outdoor air rate required for a single zone AC unit serving an interior 2,000 ft.<sup>2</sup> meeting/conference room with a design occupancy of 100 people. The system supplies and returns air from the ceiling.

Per Table 4-2, the zone air distribution effectiveness is 1.0 since the system supplies cooling only from the ceiling. Using the rates from Table 4-1 for a meeting/conference room, the minimum system outdoor air rate is calculated to be:

$$\begin{aligned} \text{Vot} &= \frac{\text{RpPz} + \text{RaAz}}{\text{Ez}} \\ &= \frac{5 \times 100 + 0.06 \times 2,000}{1.0} \\ &= 620 \text{ cfm} \end{aligned}$$

**405.4 Evaporative Cooling System for Health Care Facilities [For OSHPD 1, 2, 3 & 4]** Direct evaporative cooling systems where the air directly contacts

the wetted surface or spray shall be limited in health facilities to nonpatient areas such as laundry rooms, food preparation areas and boiler or machinery rooms. Similar rooms with high heating-producing equipment will be considered when specifically approved by the enforcing agency. The evaporative pads, shall be a synthetic type. Filters shall be required in accordance with Tables 4-B and 4-C except utility rooms i.e.: boiler or machinery rooms.

**406.0 Reserved.**

**Part I – Ventilation for Health Care Facilities [For OSHPD 1, 2, 3 & 4]**

**407.0 Ventilation System Details [For OSHPD 1, 2, 3 & 4]**

**407.1 General.**

**407.1.1** All supply-air, return air, and exhaust-air systems shall be mechanically operated and such systems for areas listed in Table 4-A shall be operated continuously. Natural ventilation through windows or other openings such as louvers will be considered as supplemental to the required mechanical ventilation systems.

**Exception 1.** Natural ventilation shall not be used in airborne infection isolation rooms and protective environment rooms.

**Exception 2.** The number of air changes may be reduced to 25 percent of the indicated value in Table 4-A, when the room is unoccupied, if provisions are made to ensure the following: (1) the number of air changes per hour indicated is reestablished whenever the space is occupied and (2) the pressure relationship with the surrounding rooms is maintained when the air changes per hour are reduced. In areas requiring no continuous directional control as identified in accordance with Table 4-A, ventilation systems may be shut down when the space is unoccupied and ventilation is not otherwise required. Ventilation shall not be reduced in rooms specifically used for airborne infection control, such as waiting rooms, triage rooms, corridors, reception areas, areas adjacent to waiting areas, airborne infection isolation rooms, negative pressure exam room, negative pressure x-ray treatment rooms, and protective environment rooms. All operating and delivery rooms shall maintain a minimum of six air changes per hour of total air when not in use.

**407.1.2** Fans serving exhaust systems shall be located at the discharge end of the system. The ventilation rates shown in Table 4-A shall be considered as minimum acceptable rates and shall not be construed as precluding the use of higher ventilation rates if they are required to meet design conditions.