

## CHAPTER 12

# INTERIOR ENVIRONMENT

### SECTION 1201 GENERAL

**1201.1 Scope.** The provisions of this chapter shall govern ventilation, temperature control, lighting, yards and courts, sound transmission, room dimensions, surrounding materials and rodent proofing associated with the interior spaces of buildings.

### SECTION 1202 DEFINITIONS

**1202.1 General.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**SUNROOM.** A one-story structure attached to a building with a glazing area in excess of 40 percent of the gross area of the structure's exterior walls and roof.

**THERMAL ISOLATION.** A separation of conditioned spaces, between a sunroom addition and a dwelling unit, consisting of existing or new wall(s), doors and/or windows.

### SECTION 1203 VENTILATION

**1203.1 General.** Buildings shall be provided with natural ventilation in accordance with Section 1203.4, or mechanical ventilation in accordance with the *California Mechanical Code*.

*Exception: [OSHPD 1, 2, 3 & 4] For restrictions on natural ventilation, see California Mechanical Code.*

**1203.2 Attic spaces.** Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. A minimum of 1 inch (25 mm) of airspace shall be provided between the insulation and the roof sheathing. The net free ventilating area shall not be less than  $1/300$  of the area of the space ventilated, with 50 percent of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

**1203.2.1 Openings into attic.** Exterior openings into the attic space of any building intended for human occupancy shall be protected to prevent the entry of birds, squirrels, rodents, snakes and other similar creatures. Openings for ventilation having a least dimension of  $1/16$  inch (1.6 mm) minimum and  $1/4$  inch (6.4 mm) maximum shall be permitted. Openings for ventilation having a least dimension larger than  $1/4$  inch (6.4 mm) shall be provided with corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material with openings having a least

dimension of  $1/16$  inch (1.6 mm) minimum and  $1/4$  inch (6.4 mm) maximum. Where combustion air is obtained from an attic area, it shall be in accordance with Chapter 7 of the *California Mechanical Code*.

**1203.3 Under-floor ventilation.** The space between the bottom of the floor joists and the earth under any building except spaces occupied by basements or cellars shall be provided with ventilation openings through foundation walls or exterior walls. Such openings shall be placed so as to provide cross ventilation of the under-floor space.

**1203.3.1 Openings for under-floor ventilation.** The minimum net area of ventilation openings shall not be less than 1 square foot for each 150 square feet (0.67 m<sup>2</sup> for each 100 m<sup>2</sup>) of crawl-space area. Ventilation openings shall be covered for their height and width with any of the following materials, provided that the least dimension of the covering shall not exceed  $1/4$  inch (6 mm):

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grilles or gratings.
4. Extruded load-bearing vents.
5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension not exceeding  $1/8$  inch (3.2 mm).

**1203.3.1.1 [SPCB] Openings for under-floor ventilation shall be not less than 1 1/2 square feet (0.135 m<sup>2</sup>) for each 25 linear feet (7620 linear mm) of exterior wall. They shall be covered with corrosion-resistant wire mesh with mesh openings not less than 1/4 inch (6.4 mm) nor more than 1/2 inch (13 mm) in any dimension.**

**1203.3.2 Exceptions.** The following are exceptions to Sections 1203.3 and 1203.3.1:

1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.
2. The total area of ventilation openings is permitted to be reduced to  $1/1,500$  of the under-floor area where the ground surface is covered with a Class I vapor retarder material and the required openings are placed so as to provide cross ventilation of the space. The installation of operable louvers shall not be prohibited.
3. Ventilation openings are not required where continuously operated mechanical ventilation is provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m<sup>2</sup>) of crawl space floor area and the ground surface is covered with a Class I vapor retarder.

4. Ventilation openings are not required when the ground surface is covered with a Class I vapor retarder, the perimeter walls are insulated and the space is conditioned in accordance with the *California Energy Code*.
5. For buildings in flood hazard areas as established in Section 1612.3, the openings for under-floor ventilation shall be deemed as meeting the flood opening requirements of ASCE 24 provided that the ventilation openings are designed and installed in accordance with ASCE 24.
6. [SPCB] For purposes of structural pest control inspections, ventilation shall be considered inadequate when the lack thereof has contributed to the growth of wood-destroying pests or organisms.

**1203.4 Natural ventilation.** Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

[HCD 1] In employee housing, all openable windows in rooms used for living, dining, cooking or sleeping purposes, and toilet and bath buildings, shall be provided and maintained with insect screening.

[HCD 1] Door openings of rooms used for dining, cooking, toilet and bathing facilities in employee housing shall be provided and maintained with insect screening or with solid doors equipped with self-closing devices in lieu thereof, when approved by the enforcement agency.

[HCD 1] The windows, doors, louvers or other approved closeable openings not required by Section 1029 may open into a passive solar energy collector for ventilation required by this section. The area of ventilation openings to the outside of the passive solar energy collector shall be increased to compensate for the openings required by the interior space.

**1203.4.1 Ventilation area required.** The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

**1203.4.1.1 Adjoining spaces.** Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

**Exception:** Exterior openings required for ventilation shall be permitted to open into a *thermally isolated* sunroom addition or patio cover provided that the openable area between the sunroom addition or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

**1203.4.1.2 Openings below grade.** Where openings below grade provide required natural ventilation, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

**1203.4.2 Contaminants exhausted.** Contaminant sources in naturally ventilated spaces shall be removed in accordance with the *California Mechanical Code* and the *California Fire Code*.

**1203.4.2.1 Bathrooms.** Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the *California Mechanical Code*. The minimum ventilation or exhaust rate shall not be less than that established by Table 4-4 "Minimum Exhaust Rates." See *California Mechanical Code* for additional provisions related to environmental air ducts.

**1203.4.3 Openings on yards or courts.** Where natural ventilation is to be provided by openings onto yards or courts, such yards or courts shall comply with Section 1206.

**1203.5 Other ventilation and exhaust systems.** Ventilation and exhaust systems for occupancies and operations involving flammable or combustible hazards or other contaminant sources as covered in the *California Mechanical Code* or the *California Fire Code* shall be provided as required by both codes.

## SECTION 1204 TEMPERATURE CONTROL

**1204.1 Equipment and systems.** Interior spaces intended for human occupancy shall be provided with active or passive space-heating systems capable of maintaining a minimum indoor temperature of 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.

**Exceptions:**

1. Interior spaces where the primary purpose is not associated with human comfort.
2. [HCD 1] For limited-density owner-built rural dwellings, a heating facility or appliance shall be installed in each dwelling subject to the provisions of Subchapter 1, Chapter 1, Title 25, California Code of Regulations, commencing with Section 74; however, there shall be no specified requirement for heating capacity or temperature maintenance. The use of solid-fuel or solar-heating devices shall be deemed as complying with the requirements of this section. If nonrenewable fuel is used in these dwellings, rooms so heated shall meet current installation standards.
3. [OSHPD 1, 2, 3 & 4] Space heating systems shall comply with the requirements of the *California Mechanical Code*.
4. [HCD 1] When a passive solar energy collector is designed as a conditioned area it shall comply with