

**WAC 388-97-4040 Ventilation systems in new construction.** The nursing home must ensure:

- (1) Ventilation of all rooms is designed to prevent objectionable odors, condensation, and direct drafts on the residents;
- (2) All habitable space is mechanically ventilated including:
  - (a) Air supply and air exhaust systems;
  - (b) Installation of air-handling duct systems according to the requirements of the International Mechanical Code and chapter 51-52 WAC;
  - (c) Installation of supply registers and return air grilles at least three inches above the floor;
  - (d) Installation of exhaust grilles on or near the ceiling; and
  - (e) Outdoor air intakes located a minimum of twenty-five feet from the exhaust from any ventilating system, combustion equipment, or areas which may collect vehicular exhaust and other noxious fumes, and a minimum of ten feet from plumbing vents. The nursing home must locate the bottom of outdoor air intakes serving central systems a minimum of three feet above adjoining grade level or, if installed through the roof, three feet above the highest adjoining roof level.
- (3) Minimum ventilation requirements meet the pressure relationship and ventilation rates per ASHRAE 2007 HVAC Applications Chapter 7.11 Table 6, Pressure Relationships and Ventilation of Certain Areas of Nursing Homes.

**TABLE 6  
PRESSURE RELATIONSHIPS AND VENTILATION OF CERTAIN AREAS OF NURSING HOMES**

| Function Area                         | Pressure Relationship To Adjacent Areas <sup>1,2</sup> | Minimum Air Changes of Outdoor Air Per Hour Supplied To Room | Minimum Total Air Changes Per Hour Supplied To Room | All Air Exhausted Directly To Outdoors | Air Recirculated Within Room Units |
|---------------------------------------|--|--|---|--|------------------------------------|
| <b>RESIDENT CARE</b>                  |  |  |   |  |                                    |
| Resident room (holding room)          | ±  | 2  | 4   | Optional                               | Optional                           |
| Resident corridor                     | ±  | Optional   | 2   | Optional                               | Optional                           |
| Toilet room                           | N  | Optional   | 10  | Yes                                    | No                                 |
| Resident gathering (dining, activity) | ±  | 2  | 4   | Optional                               | Optional                           |
| <b>DIAGNOSTIC AND TREATMENT</b>       |  |  |   |  |                                    |
| Examination room                      | ±  | 2  | 6   | Optional                               | Optional                           |
| Physical therapy <sup>3</sup>         | N  | 2  | 6   | Optional                               | Optional                           |
| Occupational therapy <sup>3</sup>     | N  | 2  | 6   | Optional                               | Optional                           |
| Soiled workroom or soiled holding     | N  | 2  | 10  | Yes                                    | No                                 |
| Clean workroom or clean holding       | P  | 2  | 4   | Optional                               | Optional                           |
| <b>STERILIZING AND SUPPLY</b>         |  |  |   |  |                                    |
| Sterilizer exhaust room               | N  | Optional   | 10  | Yes                                    | No                                 |
| Linen and trash chute room            | N  | Optional   | 10  | Yes                                    | No                                 |
| Laundry, general <sup>3</sup>         | ±  | 2  | 10  | Yes                                    | No                                 |
| Soiled linen sorting and storage      | N  | Optional   | 10  | Yes                                    | No                                 |

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|--------------------------------------|--|--|---|--|------------------------------------|
| Clean linen storage SERVICE          | P  | Optional   | 2   | Yes                                    | No                                 |
| Food preparation center <sup>3</sup> | ±  | 2  | 10  | Yes                                    | Yes                                |
| Warewashing room <sup>3</sup>        | N  | Optional   | 10  | Yes                                    | Yes                                |
| Dietary day storage                  | ±  | Optional   | 2   | Yes                                    | No                                 |
| Janitor closet                       | N  | Optional   | 10  | Yes                                    | No                                 |
| Bathroom                             | N  | Optional   | 10  | Yes                                    | No                                 |
| Personal services (barber/salon)     | N  | 2  | 10  | Yes                                    | No                                 |

1/ P=Positive N=Negative ±=Continuous directional control not required.

2/ Whether positive or negative, pressure must be a minimum of seventy cubic feet per minute (CFM).

3/ The volume of air may be reduced up to fifty percent in these areas during periods of nonuse. The soiled holding area of the general laundry must maintain its full ventilation capacity at all times.

(4) Individual exhaust systems meet the following requirements:

(a) Where individual mechanical exhaust systems are used to exhaust individual toilet rooms or bathrooms, the individual ventilation fans are interconnected with room lighting to ensure ventilation while room is occupied. The ventilation fan must have a time delay shutoff to ensure that the exhaust continues for a minimum of five minutes after the light switch is turned off; and

(b) The volume of air removed from the space by exhaust ventilation is replaced directly or indirectly by an equal amount of tempered/conditioned air.

(5) Central exhaust systems meet the following requirements:

(a) All fans serving central exhaust systems are located to prevent a positive pressure in the duct passing through an occupied area; and

(b) Fire and smoke dampers are located and installed in accordance with the International Building Code, Standards and amendments in chapter 51-50 WAC.

(6) Air filters meet the following requirements:

(a) All central ventilation or air-conditioning systems are equipped with filters per ASHRAE 2007 HVAC Applications Chapter 7.11 Table 5, Filter Efficiencies for Central Ventilation and Air Conditioning Systems in Nursing Homes and meet the following requirements:

| FUNCTION AREA   | Minimum Number of Filter Beds | Filter Efficiency of Main Filter Bed, MERV* |
|---|-------------------------------|---|
| Resident care, treatment, diagnostic, and related areas | 1                             | 15  |
| Food preparation areas and laundries                    | 1                             | 8   |

| Table 5<br>Filter Efficiencies for Central Ventilation and<br>Air-Conditioning Systems in Nursing Homes |                                     |   |
|---|-------------------------------------|---|
| FUNCTION AREA   | Minimum<br>Number of<br>Filter Beds | Filter Efficiency<br>of Main Filter<br>Bed, MERV* |
| Administrative,<br>bulk storage, and<br>soiled holding<br>areas   | 1                                   | 6   |
| *MERV = Minimum Efficiency Reporting Value  |                                     |   |

(b) Central ventilation or air conditioning systems means any system serving more than a single room used by residents or by any group of rooms serving the same utility function (i.e., the laundry);

(c) Filter efficiency is warranted by the manufacturer and is based on atmospheric dust spot efficiency per ASHRAE Standard 52.2;

(d) The filter bed is located upstream of the air-conditioning equipment, unless a prefilter is employed. In which case, the prefilter is upstream of the equipment and the main filter bed may be located downstream;

(e) Filter frames are durable and provide an airtight fit with the enclosing duct work. All joints between filter segments and enclosing duct work are gasketed or sealed;

(f) All central air systems have a manometer installed across each filter bed with an alarm to signal high pressure differential; and

(g) Humidifiers, if provided, are a steam type.

[Statutory Authority: Chapters 18.51 and 74.42 RCW and 42 C.F.R. 489.52. WSR 08-20-062, § 388-97-4040, filed 9/24/08, effective 11/1/08.]