



Commercial Buildings Frequently Asked Questions Ventilation

IBC 1018.5 An existing school (Pre-ICC) proposes to change the HVAC system from unit ventilators to a central ventilation system. The existing school has transfer grills in the door and utilizes the existing corridors for air movement. Given the alterations to the HVAC system may the existing corridors continue to be utilized for air movement?

Answer: Yes, as long as the corridors are existing, they may continue to be utilized for air movement. Only those corridors constructed under the IBC will be subject to the Section 1018.5 prohibition on use of corridors for air movement.

SPS Table 364.0403 I have a space with a use that is not an exact match to one of the uses listed in SPS Table 364.0403. The most similar occupancy listed in SPS Table 364.0403 says "NR" in the exhaust column of SPS Table 364.0403, does this mean that no exhaust is required?

Answer: No. Although picking the most similar occupancy is appropriate for the "general people ventilation" of occupancies that relates to fresh outside air, the same is not true for exhaust. If there is not an occupancy match in Table 364.0403, refer to IMC chapter 5 to determine if exhaust is required and how much exhaust is needed to create the expected air quality.

Before Wisconsin adopted the IMC, almost all ventilation and exhaust requirements were contained in a table in SPS 364. The IMC breaks ventilation and exhaust requirements into two chapters. When it comes to exhaust, Table 364.0403 is not the driver to require mechanical exhaust ventilation except where there is an exact match. (May 24, 2011)

SPS Table 364.0403, IMC 404, SPS 364.0404 & IMC 502.13. What are the minimum ventilation requirements for an "Enclosed Parking Garage"?

Answer: IMC 502.13 allows the use of IMC Ch. 4 which provides two options. Additionally, IMC 404, as modified by SPS 364.0404, provides two additional options involving intermittent exhaust system operations.

Any one option may be applied assuming all requirements are met. Each option is addressed below:

- 1) IMC/SPS Table 364.0403 references "Enclosed Parking Garages". A minimum exhaust rate of 0.5 cfm/sf of floor area is required to be addressed from the space. The exhaust fan(s) would be required to operate continuously per IMC 502.13. Note that appropriate make up air would also be required per IMC 403.1.
- 2) IMC/SPS 364.0403 footnote "I" states that a mechanical ventilation system is not required in garages having a floor area of 850 sf or less AND used for storage of 5 or fewer motorized vehicles.
- 3) IMC 502.13 recognizes the use of IMC 404 as amended by SPS 364.0404(1). Applying SPS 364.0404(1), a minimum exhaust rate of 0.05 cfm/sf of floor area would be required at all times, and the system would then be required to automatically exhaust a minimum of 0.75 cfm /sf of floor area upon detection of vehicle operation or the presence of occupants by approved automatic detection devices. An occupancy sensor has been recognized by the Dept. as an acceptable automatic sensing

system. Other sensing options may be applied as approved by the Dept. based on justification provided with the plan submittal. Note that appropriate make up air would also be required per IMC 403.1.

4) IMC 502.13 also recognizes the use of IMC 404 as amended by SPS 364.0404(2). Applying IMC 404 & SPS 364.0404(2), a minimum exhaust rate of 0.75 cfm/sf of floor area would be required to be addressed a minimum of 5 hours per day. Additionally, CO & NO₂ detectors would be required to be installed. Note that NO₂ sensors are required to be installed if ANY diesel fueled motorized vehicles are anticipated to be stored at ANY future time. Both detectors would be required to have thresholds set at not more than 35 parts and 1 part per million, respectively. Installation is required such that if the detector set points are exceeded, the exhaust fan(s) will operate for a period of time over and above the minimum 5 hours until such time that the set points were no longer exceeded. Note that appropriate make up air would also be required per IMC 403.1.

SPS 364.0403 What ventilation requirements are to be met for a boat or other 'off-highway' vehicle storage area?

Answer: The Department's code has provisions that apply when a use does not fit entirely within one of the listed occupancies in either the IBC or IMC. The Department has specifically modified IMC 403.3 to address this. Ventilation rates for occupancies not represented in SPS Table 364.0403 shall be determined by using the most similar occupancy in the table as based on SPS 364.0403(5)(a). The storage of a boat is more similar to storage of a vehicle than it is to general warehouse storage. Additionally, when one rule prescribes a general requirement and a different rule a more specific requirement on the same subject, the more specific rule shall govern per SPS 361.03(3)(c). Either of the occupancy classifications listed in SPS Table 364.0403 and IMC 403.3 could potentially relate to the storage of boats, however enclosed parking structure is a more specific designation. The guidelines present in both 364.0403(5)(a)2.d. and 361.03(3)(c) support requiring boat or other 'off-highway' vehicle storage to comply with the exhaust requirements of an enclosed parking garage.