# Garage Ventilation | Engineering Data Sheet 5-07

- Content last reviewed: June 2009

## 1. General

Ventilation shall be provided in garages to limit the exposure of workers to carbon monoxide to below the Time-Weighted Average Exposure Value (TWAEV) of 25 parts per million for a normal 8 hour workday or 40 hour workweek. In addition, any short-term (i.e., within a 15 minute period) exposure shall not exceed the Short Term Exposure Value (STEV) of 100 parts per million of carbon monoxide. Where a general exhaust system is used, it should be designed to provide uniform ventilation over the entire area with provision for replacement air.

## 2. Repair Stall

Local mechanical exhaust systems directly connected to tail pipes and terminating outdoors should have the following minimum capacities:

340 $m^3$/h (200 cfm) per vehicle with engine displacement of less than 6.5 L (400 cu.in.).
680 $m^3$/h (400 cfm) per vehicle with larger engine displacement.

A short length of flexible hose from a tail pipe to outdoors may replace the mechanical ventilation referred above. The hose connection to the tailpipe should have a tight fit to minimize leakage of engine exhaust into the workplace.

## 3. Repair Garage

In addition to the tail pipe exhaust systems referred to in Section 2, when a repair bay is not immediately adjacent to an outside garage door opening, continuous general ventilation of 2,550 $m^3$/h (1,500 cfm) per internal bay should be provided to dilute exhaust gases generated by the movement of vehicles within the building.

## 4. Parking (Storage) Garage

The requirements listed in this section are based on short-term exposure of drivers to exhaust fumes when entering or departing a storage garage. Additional ventilation (e.g., tempered fresh air ducted to the garage attendant's booth) may be required if:

1. workers are stationed in the garage for a long period, and
2. 
    1. there are long periods of engine idling (e.g., during winter warm-ups, loading, etc.), or

2. the general traffic pattern is such that groups of vehicles arrive or depart in clusters.

A continuous supply of 850 $m^3$/h (500 cfm) fresh air should be provided per parking space.

No mechanical ventilation is required for:

1. a storage garage above grade level with a total capacity of less than 20 motor vehicles and constructed with a floor sloping to outside ground level, or
2. a storage garage located not more than 3 feet below grade and provided with wall openings of at least 25% of perimeter walls. The opening must be distributed to provide cross ventilation.

## 5. Loading Dock (indoors)

Continuous mechanical ventilation of 36 $m^3$/h per sq. metre (2 cfm per sq. ft.) of dock area is acceptable where truck motors are shut off except when entering or leaving the dock.

## 6. Grease and Repair Pits

To prevent the accumulation of flammable/combustible vapours, continuous mechanical exhaust of 18 $m^3$/h per sq. metre (1 cfm per sq. ft.) of pit floor area shall be provided to the outdoors from no higher than 300 mm (12 in.) and preferably within 150 mm (6 in.) of the pit floor.

## 7. Carbon Monoxide Monitoring Device

With the exception of Grease and Repair Pits, where continuous ventilation is required (see Section 6), the installation of an effective carbon monoxide monitoring device for automatically controlling adequate fan operation is acceptable.