



# Exhaust Removal Systems

Room Ventilators are an option if adequate fresh air is available to replace the air being removed by the ventilator fan. In some cases room ventilators can be used in conjunction with point-of-source (tailpipe) systems to provide good carbon monoxide removal. Please call SVI for details on room ventilators.

## System Design

1. Determine the number of stalls requiring exhaust removal and the type of vehicles being serviced.
2. Determine the position of the fan/blower. The blower should be mounted on a rigid platform approximately 16' high. Belt drive blowers weigh between 200 and 600 lbs. (200 lbs. for a typical 2000 cfm blower; 600 lbs. for an 8000 cfm blower).
3. Choose either an overhead or underfloor duct system layout. Ductwork should be graduated, narrow farthest from the fan, widening as the ductwork approaches the fan and the CFM increases. This allows for an even flow throughout the system and is generally more acceptable to O.S.H.A. inspectors. The stall farthest from the blower will have the same airflow as that stall closest to the blower.
4. Determine the layout and distance from the fan to the farthest stall (in feet)
5. If the system is to be mounted overhead via ductwork, how will the hoses be retracted. Page 6 provides many options.
5. If the system is to be mounted underfloor a drain should be included to flush the floor ducting of water, oil and other foreign material. Underfloor ductwork (usually schedule 80 PVC) should be sloped at 1" per 40 feet to allow for proper drainage.
6. Determine the amount of air flow required.
7. Determine the duct and hose sizing. See page 13.
8. Determine the blower size based on the CFM requirement plus the pressure loss due to friction (Static Pressure). See pages 4-5.

## Considerations

The greater the number of outlets connected to one fan, the greater the chance of large variations in the amount of suction. In many cases, two smaller fans will provide better overall performance than one large fan.

Sixteen Discharge positions are available for the fan. Fan housings are reversible and rotatable in 450 increments.

SVI can provide in-line dampers and/or tailpipe dampers which can close off particular outlets that are not in use.

Exhaust blowers are available with either the fan connected directly to the motor shaft or via a V-belt drive arrangement. Direct drive arrangements have the advantage of greater efficiency electrically and a less expensive initial cost. Belt drive fans are especially desirable when the required horsepower or fan speed requirement is in doubt.

If a direct drive blower is desired but the CFM requirements may change over time SVI can provide a manual damper at the fan inlet. This damper allows the user to control the air flow and restrict a portion of it should the CFM requirement be lower than the maximum output of the fan.

Fan performance is developed using standard air which is 70°F., 29.92" barometric pressure and .075 lbs. per cubic foot. Temperature and/or altitude conversion factors are used in making corrections to standard conditions. Please call SVI if the application requires nonstandard temperature and/or altitude.

The recommendations in this booklet are of a general nature. Local codes will supersede any specifications given in this manual. For further information, please call SVI.