

# Diesel Exhaust Systems

## Vektor® Solutions for Emergency Diesel Generator Exhaust

Electric power supply is critical for life safety in a variety of applications. Universities may require the supply of backup power to maintain normal operation for the safety of students, staff, and faculty. Hospitals require emergency power supply to treat patients for the duration of power outages. Data centers are vital in today's world and rely on power for uninterrupted operation. For these critical applications, facility engineers often rely on diesel generators for emergency power generation.



Diesel generators are used for emergency power. They are typically interiorly mounted and located on the lowest floor of the building.



## Diesel Generation Applications

Diesel generator equipment is typically interiorly mounted and located on the lowest floor of the building due to their substantial weight. A 1500 kW generator can produce 12,000 cfm of exhaust fumes at temperatures exceeding 775°F. To exhaust these high temperature contaminants, ductwork is added to the generator exhaust, run to the facility roof deck, and exhausted through stacks. Unfortunately, the stack position and changing wind direction can cause exhaust contaminants to be re-entrained into roof top make-up air systems causing air quality issues within the owner's facility or even neighboring buildings.

One solution to solve re-entrainment is to use extended roof stacks which can carry effluent higher above the roof deck. The challenges of these systems are the expense of added structure to the facility, added back pressure on the diesel generator, and they can be aesthetically undesirable. A better solution is Greenheck's Vektor-CD Diesel Generator Exhaust System.

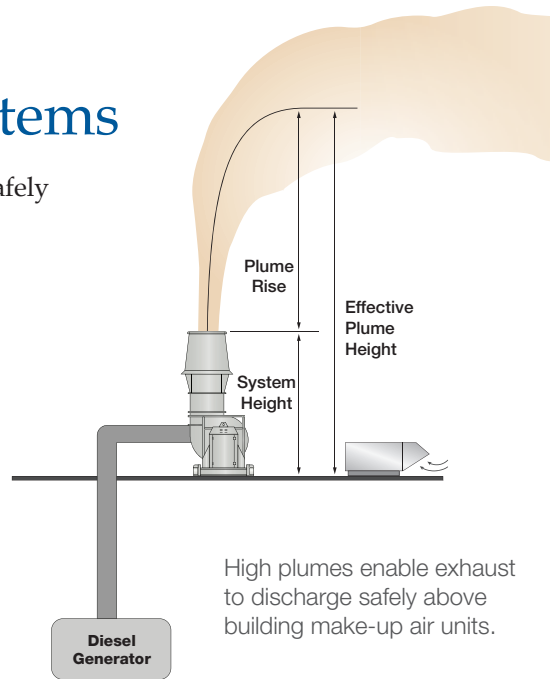
Tall stacks are structurally challenging and aesthetically undesirable. Short stacks can lead to re-entrainment of exhaust.

# Greenheck's Vektor-CD Diesel Generator Exhaust Systems

The Vektor-CD Diesel Generator system is the ideal solution to safely exhaust high temperature and odorous diesel fumes.

## Benefits include:

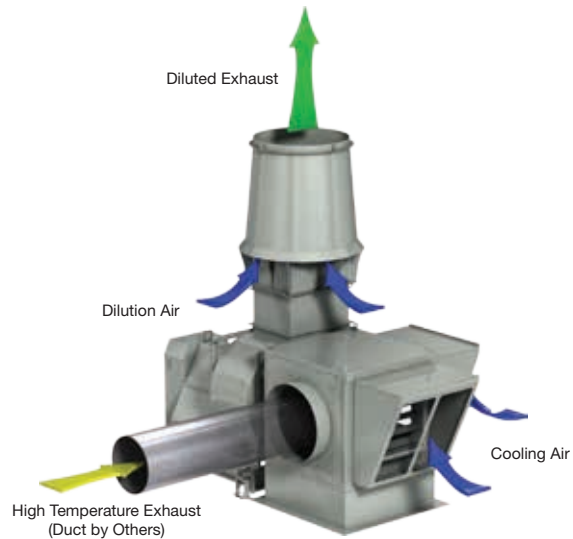
- Integral bypass plenum to cool and dilute exhaust fumes
- Manual quadrant bypass damper for system balancing
- High temperature fan construction
- Low pressure operation and efficient impeller and nozzle design minimizes energy usage
- "High Plume Dilution" nozzle to further cool, dilute and propel exhaust effluent
- Reliable design that is easy to install and maintain for long term use



## System Operation

The Vektor system is positioned on the roof deck where the high temperature exhaust effluent enters the bypass plenum from the diesel generator exhaust duct. Bypass air mixes with diesel exhaust to cool and dilute prior to entering the high temperature exhaust fan. Greenheck's patented high plume dilution nozzle further cools and dilutes the exhaust effluent while creating a high plume rise to propel effluent safely away from the facility roof deck and related air intakes.

The system includes an inlet collar for the high temperature exhaust, two weatherhoods for the protection of bypass air inlets and a uniform temperature plate to mix the heated airstream with cooler ambient air.



Typical configuration for diesel generation applications.



To learn more about Greenheck's diesel generator exhaust systems, please visit [www.greenheck.com](http://www.greenheck.com) where you can configure your own system using Greenheck's eCAPS® application-based selection software. This provides fan selection details, budget pricing and Revit® content as well.

