



MVU™ Airport Applications

Today's Airport Fire Departments face many new challenges. The facilities they protect are more like cities than airports, employing hundreds of people in a variety of environments. Larger aircraft, the increased threat of terrorist attacks, and the challenge of getting an airport back to normal as quickly as possible after an incident mean new tools and techniques are required to meet the demands of effective fire fighting. And there is pressure to quickly get the airport back to normal after an incident, because every minute of delay costs money.

Tempest's Mobile Ventilation Unit can assist airport fire fighting teams in meeting these challenges. By using Positive Pressure Ventilation, also known as PPV, the MVU gives fire fighters quick control of the environment inside any enclosed structure.

The MVU works by creating an air-seal at the entrance point, rapidly pressurizing the structure. The resulting airflow blows clean, fresh air into the structure, forcing out heat, smoke, and harmful gasses. It can be used to ventilate any size or shape structure as long as there is an entrance point for the clean air and an exit point for the contaminated air. With its unique misting system, the MVU also offers new methods for dealing with terrorist threats and mass decontamination situations.

Hotel Ventilation

The Hyatt Regency West Hotel at the Dallas Fort Worth International Airport is a typical airport hotel. It has twelve floors, a large below-ground ballroom, and a large lobby area. Recently, Tempest Technology and the Dallas Fort Worth International Airport fire department teamed up to test the MVU in the Hyatt Regency. Two simulations were performed.

For our first scenario, the below-ground ballroom was filled with smoke because below-ground spaces can be the most difficult to ventilate. The MVU was positioned near the rear entrance of the hotel, and a standard man-door was used as the exit point. Once the MVU was engaged, visibility improved significantly after only two minutes. After ten minutes, the ballroom was completely cleared of smoke.

To demonstrate that the MVU can ventilate any floor of a hotel, while keeping the stairwell clear for victims and rescue personnel, our second scenario consisted of filling the entire tenth floor of the hotel with smoke. Using the emergency exit stairwell to direct the airflow, the MVU was positioned at ground level, blowing through the main entrance. The doors in the lobby and on the tenth floor were opened for the exit point. It took only five minutes for the tenth floor to be completely cleared of smoke.

Aircraft Ventilation

Tempest worked with the fire department at the Ontario International Airport to test the capabilities of the MVU for effective aircraft ventilation. They were interested in seeing how the MVU could affect smoke and heat inside a burning jet.

The demonstration was performed using a 747 cargo jet. A stair truck was driven up to the front passenger door, and the MVU was positioned about thirty feet from the doorway, allowing for easy access to the jet. The rear cargo door of the jet was used as the exhaust opening. Smoke machines were allowed to charge inside the jet until zero visibility was achieved. After starting the MVU, the entire cargo area was cleared of smoke in less than a minute.

Terminal Ventilation

Dallas Fort Worth International Airport teamed with Tempest again to test the capabilities of the MVU for airport terminal ventilation. They were interested in seeing how quickly a terminal building could be cleared of air-borne contaminants. Terminal B was filled with smoke to simulate a fire or release of fumes and odors.

The MVU was positioned on the tarmac and a passenger jet way located in the middle of the terminal was used as the entrance opening. A jet way located at the end of the terminal building was used as the exhaust opening.

After starting the MVU, it took only ten minutes for the terminal building to become pressurized as the smoke could be seen moving towards the exhaust opening. After 20 minutes, the smoke began to clear and visibility improved significantly. After 38 minutes, the terminal was completely cleared of smoke. A similar situation involving fumes and odors had previously occurred in the same terminal, and had taken four hours to ventilate.

Parking Structure Ventilation

The Tempest MVU has also proven effective for controlling the environment inside parking structures, which are common at airports.

For this demonstration, Tempest ran a smoke machine on the bottom floor of the parking structure to fill the interior, simulating the environment that would exist during a car fire. The MVU was located outside the entrance to the structure and a door seal was achieved around the opening. The result was a strong down-wind airflow that carried the smoke with it.

Mass Decontamination/Terrorist Responses

While the Tempest MVU is effective for PPV and controlling the environment within enclosed structures, it has another important feature: a misting system. When

connected to a standard hose coupling, it produces a fine mist that can be carried up to 100 feet in any direction.

The mist can be used to cool the air during PPV operations and knock down suspended gases. Its greatest benefit could be as a tool for mass decontamination and neutralizing Weapons of Mass Destruction.

Because the misting system flows at less than 100 gallons per minute, the amount of contaminated water generated by decontamination is kept to a minimum. Because the fine mist can be spread over a large area, large numbers of people and property can be decontaminated quickly.

As the demands for effective airport control increase, the Tempest Mobile Ventilation Unit is a versatile fire fighting tool that helps airport fire fighters prepare for and meet those challenges. With the ability to handle situations involving aircraft, hotels, terminal buildings, parking structures, and terrorist threats, the MVU can be used for many airport emergencies.

Tempest Technology Corporation has been in the fire fighting ventilation business since 1987 and has established a reputation as a leader and innovator in the development of products for Positive Pressure Ventilation. The MVU is the latest example of the innovations that Tempest has brought to the fire service worldwide.

For additional information on the complete line of Tempest products contact us at:

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