

AN APPLICATION OF GENESIS AIR GAP PCO TECHNOLOGIES FOR ANTITERRORISM FORCE PROTECTION

The following excerpt from the Unified Facilities Criteria (UFC) addresses DoD Minimum Antiterrorism Standards for Buildings:

UFC 4-010-01 (8 October 2003 Including change 1, 22 January 2007)

Standard 18. Emergency Air Distribution Shutoff. For all new and existing inhabited buildings, provide an emergency shutoff switch in the HVAC control system that can immediately shut down the air distribution system throughout the building except where interior pressure and airflow control would more efficiently prevent the spread of airborne contaminants and/or ensure the safety of egress pathways. Locate the switch (or switches) to be easily accessible by building occupants. Providing such a capability will allow the facility manager or building security manager to limit the distribution of airborne contaminants that may be introduced into the building.

The resultant engineered design typically has the building HVAC control system configured to shut down all air handlers and exhaust fans, leaving the occupants to remain in the building without the benefit of environmental conditioning.

Genesis Air's GAP photocatalytic oxidation (PCO) technologies can be deployed in the mixed air accessory section of air handling systems to allow those systems to continue in operation during an emergency override event. With GAP PCO properly placed, exercising the emergency override switch would then immediately carry out the following Sequence of Operations procedures:

- 1) Initiate an alarm to signify the emergency override switch has been exercised;
- 2) Deenergize all exhaust fans to prevent the building from being placed under negative pressure;
- 3) Verify proper operation of the GAP PCO lamps & ballasts. If the PCO is not fully functional, shut down all air handling equipment. Otherwise, proceed to the next step;
- 4) Fully close all outside air dampers and fully open all return air dampers to direct the recirculating air through the GAP PCO sections of the air handling systems while preventing the potential introduction of airborne hazards in the outside air;
- 5) Continue operation in 100% recirculation mode until emergency event is concluded.

Users have been very receptive to this application, as it allows them to continue to function with the use of necessary heat-generating equipment, such as computers, lights, etc., during the emergency event.

GAP PCO has been shown to be effective against many airborne biological and chemical agents. It is in use in the manner described above at numerous US Department of Defense, US Department of Homeland Security, and other governmental, institutional and commercial facilities.

David J. Branson, PE
Executive Vice President
Compliance Services Group, Inc.