



Risk Management Series

Reference Manual

to Mitigate Potential Terrorist Attacks Against Buildings

December 2003



FEMA

(Excerpts from FEMA Publication 426, December 2003)

Recent terrorist events have increased interest in the vulnerability of buildings to CBR (Chemical, Biological and Radiological) threats. Of particular concern are building HVAC systems, because they can become an entry point and distribution system for airborne hazardous contaminants.

Ultraviolet Germicidal Irradiation (UVGI).

UVGI has long been used in laboratories and healthcare facilities. Ultraviolet light radiation in the range of 2,250-3,020 Angstroms is lethal to microorganisms. All viruses and almost all bacteria (excluding spores) are vulnerable to moderate levels of UVGI exposure. Spores can be effectively removed through high efficiency air filtration. For these reasons, today most UVGI systems are installed in conjunction with high efficiency filtration systems in many healthcare facilities.

It is very important to properly design and install UVGI systems in order to obtain the desired effects. Improper systems may provide a false sense of protection.

A design utilizing a combination of filtration and UVGI can be very effective against biological agent. Smaller microbes, which are difficult to filter out, tend to be more susceptible to UVGI; while larger microbes, such as spores, which are more resistant to UVGI, tend to be easier to filter out.

