ANTI-TERRORISM SIMULATOR DEVELOPMENT FOR CURTAIN WALL SURVIVABILITY TESTING

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Several large scale shocktubes were constructed around the world to simulate nuclear environments for full scale systems. Through the use of distributed charge designs, the simulation envelope can be extended to very low yield high explosive ranges. With the rise of terrorist activities and resulting requirements for survivability testing of building components, the distributed charge systems could be used for high explosive testing at costs typically much less than required for free field full size high explosive detonations. The large scale shocktubes provide an existing infrastructure and act as a standalone testbed requiring little maintenance for the simulations discussed. A typical application would consist of hanging detonation cord in a plane to provide a wall of high explosive. Impulse is determined by total charge weight, and overpressure is determined by range from the charge inside the shocktube. In this paper the experiments, and calculations are presented which resulted in a charge design that produced a low yield high explosive simulation, at a significant cost savings versus a free field detonation, for the purpose of testing full scale curtain wall systems found on most modern buildings. Curtain walls are the structures that hold the windows in place, and represent an area of vulnerability due to the amount of glass involved.