ADVANCED DEVELOPMENT OF A NOVEL LIGHTWEIGHT DEPLOYABLE SHELTER WITH HIGH BLAST AND BALLISTIC PROTECTION

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As described initially at MABS19[1] the military and emergency-response agencies use a wide range of lightweight deployable structures such as trailers and metal-framed tents for expedient field sheltering of personnel and equipment. Such shelters are designed primarily for weather protection 'behind lines' such as at field encampments, yet can greatly increase occupant vulnerability to blast attack. A novel deployable fabric-sheathed shelter system was described at MABS21 employing air-beam arches designed to flex and buckle elastically under blast load then rebound to greatly enhance shelter survivability and occupant protection. The shelter can also be integrated with a deployable geo-textile ballistic curtain-wall. The system has since been developed to the advanced prototype stage with options for an internal flexing support masts and field-proven survivable to 70kPa incident blast, nearly ten-fold the damage threshold for standard deployable shelters. The recent developments including modeling and full-scale blast field testing are described.

Blast field testing of the airbeam shelter system with integrated ballistic curainwall

[1] Ritzel, D.V., Crocker, J., "Blast Response of Hemi-Cylindrical Tents", 19th Int'l Symp.Military Aspects of Blast and Shock, 1-5 Oct 2006, Banff, AB, Canada.