

Landside threat concentrates minds

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Multiple solutions are available or in development, such as blast mitigation panels, active shooter detection systems, and covert microwave radar detection. *Barry Cross and Ben Vogel report*

High-profile attacks on airports in recent years, particularly at Brussels and Istanbul Atatürk in 2016, have tended to focus on inflicting maximum damage on people and physical infrastructure in public areas around or inside terminals. Attention has therefore shifted to landside security, with specific provisions in the Global Aviation Security Plan (GASep), approved in October 2016 during the ICAO Assembly.

Jane's Terrorism & Insurgency Centre's data on attack tactics against aviation targets in non-conflict countries from January 2009 to June 2018 shows that stand-off/area attack was the most frequently used approach (49.1%). Explosives were used in 83.9% of these incidents.



Cognitive microwave radar technology could be used to detect concealed weapons. (Patriot One)

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Given the nature of the threat, industry is under pressure to produce solutions in terms of blast protection and stand-off detection. For blast protection, standard polycarbonate or toughened glass panels are not ideal, as a bomb blast can shatter them into thousands of pieces. This can injure bystanders up to 100 m away.

Solutions include Tensator Micam Protection (TMP) panels, which remain intact even after an explosion; and a combined blast and ballistic panel from Sema World, known as the Absolute Shield.

Tensator Installations Manager Gary Llewellyn explained that TMP panels are either fixed to posts or attached directly to walls. Posts are bolted to the floor, often using a dual-lock system that is similar in design to velcro, although much stronger. During a blast, the posts simply fall over. The company has also blast-tested a free-standing panel that moved a short distance (5 m).

“Since our initial tests, we have fitted 5 mm bolts to the beam that go through to the post, which prevents the anchors flying about in all directions. Both beams and panels now stay 100% intact, with just a little bit of cracking on the panel itself, but no fragments,” said Llewellyn.

The panels are made of highly compressed laminate that comprises multiple layers. This mixture deflects the blast. Although the panel does move during the blast, it remains in one piece.

“In Brussels, the terminal explosion kill zone went up to 60 metres; our panel will keep that down to 30 metres,” he added. Tests were undertaken with a 15 lb bomb (similar in weight to the explosive device used in the Brussels Airport attack).

Tensator has sold TMP panels to UK airports Gatwick, Heathrow, Luton, and Stansted. Some panels have been installed at the checkpoint between conveyors and scanners. However, they can also be integrated with gate infrastructure.

Brussels Airport has also bought TMP panels to clad a lift area in the lobby. Llewellyn explained that this was because the panels offer the safety feature of resisting the impact of luggage trolleys. Staff simply wipe the panels down if they are scuffed or marked; Brussels no longer needs contractors to repair endless holes caused by minor impacts. This has helped generate a rapid return on investment, and Luton is trialling the panels for similar reasons.

“Most airport walls are made of painted plasterboard. If something hits them, they have to be replaced, or holes filled and repainted,” said Llewellyn. “In fact, Luton Airport has a team of painters continually freshening up the terminal walls. With our system, this isn’t necessary. Even if just one panel gets damaged, it’s easy to take it off and replace.”

Sema World developed the Absolute Shield after the Brussels and Istanbul attacks. International Sales Manager Michel Rigaud claimed that Sema World is the only company offering a solution against blast and ballistic effects.

“In terms of explosions, the Absolute Shield can stop a 30 kg blast. We have also tested it with a range of bullets, from 9 mm to 12.7 mm, the latter being military-grade ammunition as used by an AK-47,” said Rigaud. The anti-blast material is made up of different levels of materials, some 15 cm thick. To prevent ricochets there is no outer layer seal.

The Absolute Shield can be anchored in two different ways. When ballistic threats are anticipated, it can be deployed in a mobile capacity. Rigaud said the panels should not be left in one place for too long, as they could be seen by terrorists conducting hostile reconnaissance before an attack.

Panels can also be anchored to the ground if an airport is deemed at risk from an improvised explosive device (IED) or vehicle-ramming attack. During any subsequent explosion, anchored Absolute Shield panels would deflect most of the blast upwards, avoiding casualties as the blast wave causes most deaths. “Effectively, the Absolute Shield creates a safe area behind it during the blast,” said Rigaud.

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