

# SUDDEN IMPACT



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Last month's horrific attacks on government buildings in Mogadishu, at which as I write the death toll had reached 65, serves to remind us that the vehicle-borne improvised explosive device (VBIED), or truck bomb, is still one of the preferred weapons for many terrorist groups, and is an ever-present danger. Why is the VBIED the weapon of choice? The answer is simple: it is the most low-tech, low-risk and mobile way to deliver a large amount of explosives to an intended target in an urban environment.

By using a truck, the terrorist can carry large amounts of readily and cheaply available explosive component chemicals, such as ammonium nitrate fertiliser. They can then combine this with fuel and other legal substances to make a very big bomb without the risk of attracting the attention of the authorities by having to obtain the equivalent amounts of controlled substances like commercial explosives. Of course they will need some high-grade explosives to detonate the bulk of the material, but the amount required is relatively

small and so too, therefore, is the risk associated with acquiring it either locally or through smuggling operations.

Once the bomb is ready, it can be driven direct to the target at a time and place of the terrorists' choosing, without raising suspicion, and can be detonated either as part of mobile suicide attack using a trigger switch or impact trigger, or left covertly at the target and triggered by timer or remote detonator.

So what you have is a weapon that is crude, cheap, unsophisticated, stealthy, highly mobile but devastatingly effective – the poor man's cruise missile. It should be remembered, that terrorists killed more US servicemen and civilians with a truck bomb, driven into their barracks in Beirut in 1983, than they did with the American Airlines Flight 77 that crashed into the Pentagon on 11 September 2001.

So how do you protect public places and potential targets against VBIED attack? The obvious answer is to prevent movement of vehicles in the immediate vicinity of the building. But

maintaining the balance between legitimate use of public places, freedom of movement and security means that simply pushing back the vehicle perimeter is not always practical or desirable in a free society. Restricting, slowing and controlling vehicles in and around designated areas are therefore some of the primary ways in which we can protect ourselves against the VBIED. We must also put in place methods of mitigating the blast in the event the worst happens.

The trick is to increase our defences without turning our public buildings and spaces into fortresses, which hands a partial victory to the terrorist. Discrete, unobtrusive security is the desired effect, and the private sector has not been slow to respond to today's security challenges. There are now numerous products available to help mitigate the threat and the effect while maintaining a pleasing aesthetic appearance for our public buildings and spaces.

In-ground pop-up steel barriers have been around for some time and utilise tried-and-tested technology that work well for gates and roadways. The safe, desirable default position for these barriers would be in the up position, only lowering once a driver and vehicle have been checked, but clearly this is not practical for most public buildings and places. For most high-threat public buildings such as airports, they become



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the back stop in a layered security approach that can combine security measures like CCTV, vehicle checkpoints and traffic slowing measures like speed bumps and chicanes to give security staff the opportunity to deploy the system should a threat be detected. Companies like Avon Barriers, Heald and Barker Fencing all produce systems that have met PAS 68 standards.

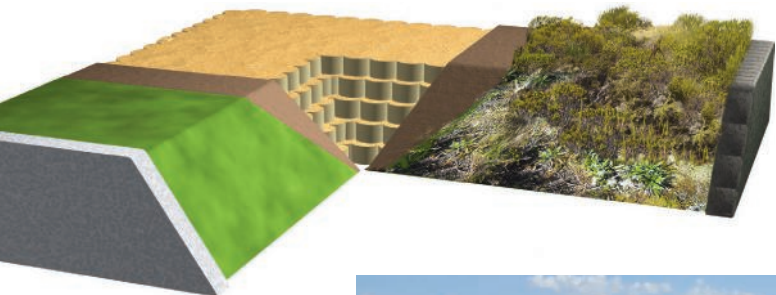
To protect the perimeter of a building or site, British company J&S Franklin market the DefenCell Profile 300. Developed from DefenCell, which is widely used by the military for force protection purposes in places like Afghanistan, the Profile 300 is made from a strong flexible geotextile material of a cellular design, which means it can

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be flat-packed for easy storage and transport. On site it can very quickly and easily be concertinaed open and filled with locally-sourced materials such as earth or sand.

In a layered construction it can be used to build barriers, berms or bunds in and around buildings and open public spaces. Due to the structure and fill, the Profile300 is not only ideal for blast mitigation but also for environmentally and visually sensitive locations, where it can be easily grassed or planted so that it quickly blends into the surroundings while still providing substantial protection from a terrorist attack. The technology is currently protecting several critical sites within the UK, but because it is discreet and unobtrusive most people probably will not have noticed.

Another UK company, CPM, produces the Redi-Rock system. This is a large block wall system that gives the appearance of natural stone and fits together in a "Lego-like" fashion. This gives it significant strength without the use of mortar, and means it can be disassembled and reused elsewhere. It has no ground anchor, but instead has a cable system running through it which acts like a necklace. This necklace effect means the blocks slide to absorb impact resulting in only 1.6m vehicle penetration.

US company Innovative Concepts International have gone for the eco-friendly approach with their Ballistic Absorption Barrier System (BABS) product. BABS is a blast mitigation wall manufactured utilising scrap rubber tyres. The product comes in 1.8meter long by 1.8meter wide x 1 meter high interlocking blocks which can be assembled into walls, with the height and length dependent on what is being protecting and the anticipated threat level. The properties of the material and design allow for the absorption of much of the blast energy, rather than redirecting the blast wave.

An added benefit of this system is that the blocks can be quickly deployed around a suspect vehicle and then be removed once the threat has been resolved. BABS can be assembled utilising normal material handling equipment, and then the whole construction can then be taken down and reused somewhere else multiple times.

When it comes to protecting public buildings – physically and aesthetically – companies like Marshalls in the UK have come up with some innovative ways of making everyday objects like bollards, benches, flower pots, bicycle stands and litter bins into attractive barriers. They use impact tested steel frames which are integrated into the design of their street furniture, extensions of which are anchored in concrete in the ground. A mix of these various pieces of street furniture strategically placed can block the access of vehicles to buildings, concourses and other public areas without the public even being aware of their protective qualities. Their range has been crashed tested up to 7.5 tonnes.

Companies like Tata Steel (formerly Corus Bi-Steel) have developed a whole range of products for stopping VBIEDs, from the Bi-Steel Pedestrian Portals for paths and concourses to temporary walls like the Quick Link Lite for major public events, which can be deployed at a rate of 30 meters of barrier per hour.

What is clear is that the threat from VBIEDs is not going to go away anytime soon, and the only sure protection is for the security services to catch would-be bombers before they attack. But no matter how many attacks are foiled, we will never know if there is not one more bomber out there waiting for his or her moment to strike. So with major events like the London Olympics just around the corner, we will rely more than ever on the companies like those mentioned above to develop innovative ways of protecting us from harm.

**Hidden strengths: barriers no longer need to be obtrusive or ugly to protect critical infrastructure**

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