



# CONSTRUCTION SITE SECURITY

**Paul Corten** outlines security issues for the construction sector and best practices for the protection of construction sites

**P**lant and equipment theft and vandalism in the construction industry is a global problem that has become the domain of international organised criminal gangs, far more so now than just opportunistic thieves. As if to emphasise the worldwide impact of this issue, in January this year a pan-European crime gang were convicted in a Belgian court over a €1-million series of thefts of cranes, excavators and trailers. The haul, including a €460,000 cement pumping truck, a €108,000 bulk tanker and €50,000 worth of trailers, were stolen, respayed and sold to unsuspecting

customers across the UK and Ireland. A month before that, a gang of metal thieves had been jailed for stealing 92km of cable over several raids in the UK.

Over £1-million of plant and equipment is stolen per week across Britain, and some estimates of the unreported thefts multiply that five-fold. The financial impact of such losses is not only felt by the equipment hirers, owners and insurance companies, but also by the building project developers, as delays to the works are a common consequence and the costs for which can run to six figures. Costs are not only the replacement of stolen property, but

**Speaker systems can be attached to play pre-recorded warnings in the event of a security breach**

also the resulting downtime, crews standing idle, lost profits, rising interest charges on loans and increased premiums. Where there are delay clauses in a contract, delays of just a few days can cost tens of thousands of pounds.

The Construction Equipment Association (CEA), owners of the CESAR scheme (the plant marking and registration initiative), noted a worrying increase in construction machinery theft in the UK since the introduction of lockdowns caused by the Coronavirus pandemic. One company, the Clancy Group, reported an increase in theft of construction machines from their sites by as much as 50 percent.

Sites can change daily in shape and form, and so the challenges they pose for protection is that the requirements may alter too. For example, a site may start as an empty plot, devoid of material value, perhaps with combustible

rubbish on site or other hazardous health and safety risks such as concealed holes or derelict buildings. Despite the low value on-site, security and protection are still required to prevent arson attacks, vandalism or risk to unauthorised trespassers' own health and safety, for which the property owners or managers can be still liable.

Then the demolition and preparation stage: if demolition or ground preparations are required, in addition to the health and safety risks of dangerous structures, there may be an increased security need to protect earth-moving and demolition equipment.

Once new building or refurbishment works have begun there are a whole host of additional security risks: building materials, fuel, high-value metals such as copper boilers, piping and wiring for heating and communication infrastructures, roofing materials, glass, lighting and paving. In one incident at an American site where a new store was being built, thieves stole four 20-ton air conditioning units pre-installation. New plant such as generators, tanks and even basic equipment such as ladders and scaffolding become possible targets for metal thieves.

**OVER £1-MILLION OF PLANT AND EQUIPMENT IS STOLEN ACROSS BRITAIN EVERY WEEK**

Once the site reaches the stage of fit-out and completion of works, new cabling, drain structures, almost any material of value can attract theft and vandalism. Because construction sites can change daily, the solutions to these challenges need to be as dynamic as the construction site itself. Round-the-clock manned security guards ensure there is a visual deterrent on-site with a quick response to incidents, once they are identified. A traditional method of security, many site and estate managers prefer guards to protect a site. Guards will not raise false alarms, and can also respond on-site to water, gas or electricity faults. They may also hear a possible breach of security before they (or a CCTV system) sees it.

But there can be substantial costs for 24/7 manned guarding, especially for long-term properties, with additional overtime and holiday cover costs. Plus they are only able to be in one place at one time, which is a problem for larger sites. And they are, after all, human: they may not stay alert for the entire shift, especially overnight schedules, where some may occasionally fall asleep. Unless an audit system is in place, regular patrols may miss critical areas of the site.

Increasingly, managers responsible for site security are turning to technology, where more sophisticated solutions are available that can enhance, improve or replace guards, without compromising the security of the site, and often for less cost.

Several technologies have been specifically geared to protect construction sites from intruders, and can differentiate between genuine breaches and false alarms, as well as secure and detect utility faults. The very latest CCTV towers, or smart towers, comprise technologies with three key elements. Firstly, they can operate without an external power supply, fitted with leading-edge hydrogen power cell technology, or solar and hydrogen

hybrids that keep the security functions active where there is no mains power. For construction sites, this power independence is a boon – no extra cabling getting in the way of the workforce or digging up trenches to lay down temporary power lines.

Secondly, they are highly flexible and modular in approach and can be rapidly deployed and removed. How they are used, and how many are required, can be changed easily, adapting to the site project development, from empty plot, demolition, construction through to fit out.

Finally, they can be ‘fully loaded’ – comprising the latest high-definition camera technology that can see in daylight or night-time modes, with sharp definition from 100m to 2km away. They can be fitted with a range of additional sensors such as movement and smoke detectors, with many smart towers linked wirelessly, and so for large sites a wide ‘security net’ can be thrown over the entire location. What the cameras can see can be monitored locally or remotely 24 hours a day. These images can also feed into mobile phones and laptops –

## DELAYS OF JUST A FEW DAYS CAUSED BY THEFT CAN COST TENS OF THOUSANDS OF POUNDS

VPS has several customers that have added value to using the smart towers, not only for security purposes, but also for delivery and supplier checks; site managers on one side of the site can watch, monitor and check a delivery that is taking place over a kilometre away.

Another very useful additional deterrent are the speaker systems that can also be attached. These can range from pre-recorded announcements for example: “You have been spotted, police have been called” to direct speech to the suspected intruders, when the system is

being monitored, and a security breach has been alerted: “We can see you, in the red jacket, and the mobile guard force and police are on their way.”

Perhaps one of the most significant advances in recent years has been the combining of Artificial Intelligence with these alarm technologies. False alarms, for example, where, say, movement sensors have triggered alerts by animals or even by excessive winds, have been radically cut using AI false alarm analytics. Advanced software programmes have developed algorithms, which have dramatically cut the number of false alarms, and so save on wasting police time.

For internal refurbishments – heritage sites like churches or country houses for example – current technologies can provide access to authorised personnel, such as trades people, architects, planners or utility engineers, without accompanied key management to provide access to the site. Smart Doors are high security steel doors with three-point locking and concealed heavy duty hinges. The in-built Bluetooth-enabled smart lock allows for intuitive locking and unlocking using a custom-built mobile phone app on any Android or Apple smartphone. A six-digit code can also be issued by text or voice message and entered on the protected keypad to operate the lock.

This new door eliminates the need for accompanied access visits, as there is no need to meet anyone to collect keys or provide access. During lockdowns, this facility has gained an extra opportunity to remain Covid-secure and avoid unnecessary journeys.

Combining modern building methods with enhanced building information systems and further use of AI is likely to see even greater leaps forward for securing construction sites. The Hollywood film *Minority Report* is set in a future where a special police unit is able to arrest criminals before they commit their crimes – today, as we witness the rapid development of facial recognition software, who knows, AI may soon enhance CCTV systems and, working with security guards, a known metal thief gang close to the perimeter of a construction site might well be apprehended before they even gain entry... ●

**Paul Corten** joined the VPS Group last year as Sales Director, and recently warned of the heightened risk to valuable plant and equipment as the impact of the pandemic, bankruptcies and a looming recession could combine to fuel a record level of criminal activity.

**CCTV smart towers can be fitted with hydrogen power cells so they don't require an external power supply**



Picture credit: VPS Group