Securing Construction Projects

Loss Control TIPS

Introduction

Implementing an effective security plan is an essential component of a successful construction project. Although site security is often implemented by the general contractor (GC), all subcontractors working on the site must also do their part for the plan to work. An effective site security plan is the deterrent needed to help prevent material and equipment theft, vandalism, malicious mischief, and acts of terrorism. In addition to the obvious direct savings associated with preventing acts of theft and vandalism, indirect or "soft cost" losses (i.e. delayed completion, downtime, cost overruns, contract penalties) can be avoided with an effective security plan in place.

A project's site security plan should be developed during the pre-construction planning stage, should be specific for the type of construction and project location, and should be clearly communicated to all contractors on the site. Project owners/managers must commit to providing the necessary support and resources to fully implement the security plan during the entire project.

Statistics collected by the American Association of Insurance Services (AAIS) and Insurance Service Office (ISO) indicate that approximately 6.3% of builder's risk losses are attributed to theft, burglary, robbery, vandalism, and malicious mischief. Theft of contractors' equipment continues to be a serious problem that has been steadily increasing in the last decade. Although the cost of this theft is not precisely known, the National Equipment Register (NER) estimates the total value of equipment stolen annually from construction sites range between $300 million and $1 billion. These statistics represent only the value of stolen equipment and do not include indirect costs from business interruption such as short-term rental costs, project delays, and lost production time. The National Insurance Crime Bureau (NICB) states that organized crime rings are the primary driving force behind heavy equipment theft, and these sophisticated criminals have equipment "shopping lists". They know the types of equipment that are in demand, they know where to find it, and they often send stolen construction equipment to other countries.

Pre- Planning

The project owner and/or construction manager should develop a job site security plan during the bid specification stage of a construction project and name an authorized representative of the general contractor to be in charge of security. The security plan should be in writing and include budgetary provisions for surveillance (i.e. patrols, security systems, closed circuit television,

web cams), inventory management of equipment and materials (i.e. equipment register, tracking systems), and control measures to be used at the site (i.e. fencing, barriers, gates, alarms, locks, watch dogs, etc.). The security plan should also include clearly defined responsibilities for security personnel, supervisors/superintendents, employees, and subcontractors. The security plan should be re-evaluated as conditions and exposures change or after reports of theft and vandalism.

Security rules and regulations should be developed that are appropriate for the construction type, location, and values potentially exposed. The plan should identify designated personnel who will be empowered to enforce the security rules and regulations at the site and include provisions for non-compliance, such as fines, penalties or removal from the site. In order to be effective, the security plan must be job-specific and unique for the proposed construction project. For example, a large condominium project located in a metropolitan district would likely need a more sophisticated security plan than a warehouse being constructed in a remote area. Owners or construction managers should avoid using a generic "boiler plate" security plan to protect their valuable property.

Pre-planning the security of a construction project should also involve local emergency services such as police and fire departments. The security coordinator should consult with local police and fire departments prior to commencing the project and provide them with a copy of the project's security plan, project schedule, proposed work shifts, and list of subcontractors. The local police may have suggestions as to how they can supplement the project's security efforts. The security coordinator should also seek to ensure that the local police department will report all losses to the National Crime Information Center (NCIC).

The workforce is often ignored in the planning of security, but it may be the most influential component. The construction workforce, which includes all general contractor employees and subcontractors' employees, should be provided an overview of the project's security plan and be given the responsibility to help combat equipment/material theft from both external and "insider" thieves. The following personnel procedures should be implemented before the project begins:

- Background checks should be performed for all employees hired to work on the project.
- Previous employers should be contacted for references.
- Convey to employees during orientation training that theft significantly impacts the project's profit and will have a direct effect on employee compensation.
- Include reductions in equipment theft in employee and supervisor incentive programs.
- Establish a confidential reward system for information leading to recovery of stolen equipment or materials.

Surveillance

Continuous surveillance of a construction project is necessary to prevent a breach in security which may result in material or equipment theft, vandalism, malicious mischief, or even an act of terrorism. Site surveillance usually involves a combination of the following measures in conjunction with appropriate site illumination:

- Patrols (self-performed, security patrol service, local police)
- Security systems
- Motion detectors
- Closed circuit television (CCTV)
- Web cams

The extent of surveillance that will be necessary to protect a site should be consistent with the construction type, location, and values potentially exposed. Using employees of the general contractor to patrol the site is generally less successful than utilizing a security service and may increase the contractor's liability exposure in the event of a security breach. Construction employees have great expertise in their individual trades but should not be relied upon to secure a construction site, especially during off-hours. In most circumstances local police can't conduct the number of patrols that are needed, but can be a great resource in conjunction with a contract security service. Patrol times and rounds should always be scheduled on a random basis. Patrol personnel should be equipped with primary and back-up forms of remote communication.

The use of security systems, motion detectors, CCTV, and/or web cams are only effective if they are monitored, preferably by an experienced security firm. The use of high technology surveillance equipment in the absence of monitoring is a waste of valuable resources. Pro-active owners and construction managers will require that all surveillance systems be supervised and monitored by an independent security service at least during off-hours. Whenever jobsites are located in high "crime areas" and/or exceptionally high value equipment and materials are present, monitoring of surveillance systems should also be considered during production (construction) hours.

In addition to being a valuable theft deterrent, night-time lighting also allows for effective surveillance of the site by

patrol personnel and security monitors. The perimeter of the jobsite should be well illuminated with lighting positioned to avoid a distracting glare for patrol personnel. Interior areas should provide lighting activated by an electric eye, motion detector, or timer. Lights that require a "warm up" period, such as sodium and mercury lights, should be avoided. Lighting should be well maintained and the changing of bulbs should be part of the project's maintenance plan.

Controls

Securing the perimeter and interior areas of a construction project will usually involve the use of multiple control measures such as those outlined below. Control measures to be used should be included in the site security plan and should be re-evaluated during all phases of the project.

Warning Signs: "No Trespassing" signs should be posted around the perimeter of the jobsite. Consider warning signs that indicate what laws will be broken and the penalty imposed if disregarded. In addition, post warning signs indicating that the Product Identification Numbers (PINs) for the equipment on the site have been recorded in a central location and on a national database such as NER. Reward signs or decals on equipment are good reminders to help discourage theft and vandalism.

Fencing: For most construction projects perimeter fencing is the primary line of defense which provides a physical barrier that will deter most intruders, controls authorized entries into the site, and demonstrates management's commitment to site security. Fencing should always be the first method of control considered during the pre-planning stage. Whenever perimeter fencing is considered feasible for a construction project, it will reduce the number and frequency of patrols that are needed. The NER provides the following recommendations regarding construction site fencing.

- Use see-through material such as chain link to further deter theft. These materials allow thieves to be visible from the controlled area in the event they get past the fence, increasing the chances of detection of any unusual activity.
- Keep fenced areas free of debris that may blow to, and get stuck in, the fence and inhibit visibility. Keep bushes and weeds trimmed back from the fence to aid visibility.
- If possible, fences should be at least eight feet in height (if codes allow), with posts set in concrete.
- Consider using barbed wire or razor wire at the top of fences (if codes allow) for added security.
- Conduct routine fence inspections and promptly repair any openings.
- Do not allow random items to be piled up on either side of a fence as it may create a "climbable" condition and compromise security.

The Chain Link Fence Manufacturers Institute (CLFMI) also has guidelines for security fencing systems.

Barriers: When perimeter fencing is not feasible, barriers can be used to help prevent the theft of mobile equipment on a construction site. Barriers include low walls, posts, dirt berms or ditches that help prevent mobile equipment from being driven or towed off the worksite. Walls and berms should be no higher than three feet, posts should protrude two to four feet from the ground and be no more than two feet apart, and trenches or ditches should be three to four feet deep and sloped so that most vehicles cannot be driven across them.

Gates: The points of ingress and egress to and from a construction site should be limited, with one entrance/exit point being ideal, and secured with a locking gate. Using guarded access to control and screen authorized entries should be considered for both construction operations and off-hours. Gates should be of heavy construction, with hinge pins spot-welded to prevent easy removal. Locking hardware should consist of a case-hardened chain and a high-security padlock permanently attached to the fence. Shielded or blind locking devices should also be used.

Locks: In addition to securing gates along perimeter fencing, locks are used to secure equipment, supplies, and materials stored within gang boxes, storage rooms, and trailers. Use only "high security" padlocks (i.e. unique key, pick resistant, case hardened or laminated steel) and prohibit the use of combination locks. When possible, ensure that key-in cylinder locks are protected by a guard to prevent removal. Case-hardened chains used with padlocks should be thick enough to resist torching, saws or bolt cutters. Consider cable or wire rope instead of chain as it is harder to cut and requires special tools. Require locking fuel caps on all mobile equipment. Whenever mobile equipment is stored in an unsecured area, such as a remote jobsite, consider using mechanical tire locking devices or alarms.

Key Control: An important part of a site security plan that is often overlooked is a key control program. Procedures should be established to limit access to secured key storage

to authorized personnel. If patrol personnel are given keys to access secure areas, they must also be included in the key control program. Any key taken should be recorded in a log that records the name, date, time out and time returned. Employees or subcontractors that have finished their involvement with the project must be checked against key logs. Another simple but often neglected procedure is to remove keys from all mobile equipment.

Trailers: Office and storage trailers (i.e. tool cribs) are often the site of theft, vandalism, and malicious mischief. Locating these trailers in positions near the guarded entrance/exit point, which are visible from the street, can help deter crime. For jobsites in high "crime areas", consider using metal grating over windows and doors of office trailers and immobilizing storage trailers. The NER provides the following recommendations for securing trailers on construction sites.

- Use "high security" padlocks on all trailers.
- Use "point of entry" or motion sensor alarms to provide added security for office trailers and trailers containing high value equipment or materials.
- Keep a master record of the serial numbers on all tools, equipment, computers, fax machines, desk and cell phones, and two-way radios.
- Computers should be secured using computer locking devices or secured to desks or the floor using strips of metal, bolts or screws.
- Contractors should back up their computer data weekly and store back-up media in a secure, off-site location.
- Post warning signs on the door or outside wall of all trailers.

Guard Dogs: Canine protective services primarily use rottweilers, doberman pinschers, and german shepards to detect, deter, and detain unauthorized entrants during off-hours at a construction site. These companies can offer dogs only or man/dog security teams and will usually provide daily delivery and pick-up services. The use of guard dogs as the primary method of control is generally a less effective plan for construction security and can significantly increase the contractor's liability exposure. Consult with the local police before considering the use of guard dogs to help secure a construction project.

Administrative Controls: The following administrative controls can help prevent a breach in security.

- Maintain a list of employees and subcontractors authorized to enter/leave the worksite.
- Consider issuing identification cards to employees assigned to your worksite. Assign "Visitor" passes to subcontractors or anyone else coming to your site for a short period of time.
- Log all visitors in and out of the site.
- There should be someone responsible for checking and logging vehicles entering or exiting the site.
- Contractors often park larger mobile equipment directly in front of the gate during off-hours. While the intent is to deter intruders, this placement of equipment can also prevent access for emergency services (i.e. fire, police, ambulance) and should only be considered after consulting with the local authorities.

Inventory Management

Inventory Control: Contractors should list all valuable equipment and supplies in the site security plan and identify appropriate storage areas at the construction site. An inventory control program should be established which records at least the following information on each piece of equipment:

- Equipment manufacturer and model number.
- Serial, VIN, or Product Identification Number (PIN) number (if available) – if none, a unique number should be placed on the equipment and recorded.
- Date of purchase (information needed in the event of a claim, manufacturers' recall, evaluation of equipment durability and related issues).
- Date of delivery and expected return of leased equipment.
- Personnel (names or job titles) authorized to operate the equipment.

Contractors should also maintain photographs of each side of equipment (updated annually) and duplicate the manufacturer's PIN or serial number on another location (ideally hidden) of the equipment with etching tools, die stamping or a steel punch.

Register Equipment: The NER offers a voluntary service that will register construction vehicles in a database that is available to law enforcement to assist in the recovery. All registered vehicles are marked with *NER* decals, which further deters theft by increasing the likelihood of detection while moving, storing, or selling the equipment following the theft. The registration consists of entering a machine's serial number, engine number, transmission number, and other selected identification numbers into a *NER* database.

Track Equipment: Some theft deterrence systems track equipment after a theft is discovered, while others continuously

track equipment. For example, certain systems for construction equipment are designed to recover stolen construction vehicles and equipment. The systems are automatically activated when the owner discovers that the equipment is missing and calls law enforcement to report the theft.

Global positioning system (GPS) fleet management systems have an inherent theft detection and tracking capability by continuously monitoring (tracking) construction equipment. Most GPS systems have a "geofence" capability that generates an alert if a vehicle leaves a permitted area or enters a prohibited area. In addition, many systems can define a secure period (i.e. off-hours) and generate an alert if a vehicle moves or is moved during that period. Another inherent capability of a GPS-based system is the use of software to electronically disable vehicles so they cannot be illicitly moved (electronic lockdown). With this system, a contractor can remotely disable or enable equipment ignition, monitor vehicle condition, and generate an alarm if the equipment moves outside of predetermined boundaries.

For more information on protecting construction equipment, refer to The Hartford's Loss Control TIPS S 140.444 *Preventing Theft of Contractors' Equipment*.

Offsite Exposures

Construction projects often utilize offsite storage locations and material staging areas (for "just-in-time" delivery schedules). Ideally, construction materials should be delivered on an as needed basis; however, factors such as project schedule, delivery distances, and cost often make this delivery system infeasible. The longer uninstalled materials and supplies remain stored on a construction site, the greater is their exposure to theft, vandalism, and malicious mischief. Therefore, potential exposures at offsite storage locations must be considered in the site security plan, and these areas must be held to the same standards as the main construction location.

Another source of exposure is the transportation of materials to the job site, including transportation from distant manufacturers, suppliers, or other sources in vehicles of the general contractor, subcontractor, common carrier, independent carrier, or the supplier. Securing materials in transit must be considered in the site security plan, especially when transporting high value or high theft items such as copper, fiber optics, or appliances. The trucking industry has various cargo security systems available to ensure a safe and secure delivery. They include load locks and cargo bars, vehicle locking devices (i.e. air brake locks, wheel nut locks, ignition locks, trailer hitch locks), alarms, and monitoring/tracking systems.

For more information, contact your local Hartford agent or your Hartford Loss Control Consultant. Visit The Hartford's Loss Control web site at http://www.thehartford.com/corporate/losscontrol/