

SECURITY SOLUTIONS FOR THE MANUFACTURING AND WAREHOUSING INDUSTRY

Prepared for

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IMPORTANCE AND RELEVANCE OF PHYSICAL SECURITY SOLUTIONS

The manufacturing and warehousing industry faces increased business risks that tend to be resource intensive, in terms of costs, equipment and personnel. In addition to maintaining employee safety and security, employers must protect expensive inventory and equipment from misuse, theft, environmental dangers, and quality control. While technology is not the only solution to alleviate business risks, it is an effective tool in the hands of experience supervisors to ensure safety and security.

Physical security is the protection of personnel, hardware and data from physical circumstances and events that could cause serious losses or damages to the day-to-day operations of the manufacturing and warehousing industry. This includes protection from fire, natural disasters, theft (internal and external), vandalism, harassment and workplace violence.

Physical security is often overlooked (and its importance underestimated) in favor of more high-tech and dramatic issues such as hacking, viruses, Trojans, and spyware. However, breaches of physical security can be undertaken with little or no technical knowledge on the part of an attacker. Moreover, accidents and natural disasters are a part of everyday life, and in the long term, are inevitable.

Chart 1.1 highlights the various technologies that are currently in use to ensure increased physical security.



There are three main components to physical security. First, obstacles in the way of potential attackers and sites can be hardened against accidents and environmental disasters. These obstacles include access control systems such as multiple locks, fencing, walls, fireproof safes, and water

sprinklers. Second, surveillance and notification systems such as lighting, heat sensors, smoke detectors, intrusion detectors, alarms, and video surveillance provide information on events. Third, methods can be implemented to apprehend attackers (preferably, before any damage has been done) and to recover quickly from accidents, fires, or natural disasters.

BUSINESS ISSUES IN THE MANUFACTURING AND WAREHOUSING INDUSTRY

USE OF HEAVY EQUIPMENT

Manufacturing companies use heavy machinery, but incorrect and untrained use and supervision often lead to heavy risks. Worker safety is a particularly important business risk in manufacturing environments. Workers compensation, downtime, and medical leave often lead to very high costs and impact on the bottom line. The manufacturing industry accounts for nearly 10 percent of the total United States workforce or 14 million people. In 2006, the Bureau of Labor Statistics reported that the number of nonfatal occupational injuries in manufacturing were 859,100. This accounts for nearly 6.1 percent of the workforce, leading to millions of man hours of leave and downtime, hence reducing productivity. Supervisors can keep an eye on employees with the use of surveillance cameras and intervene in cases of incorrect use of equipment to reduce accidents and occupational injuries, thereby increasing productivity and improving operational profits.

Equipment misuse and intrusions are risks that all manufacturing companies face regularly. Over the past 2 years, the rate of copper theft has increased dramatically. These risks can be reduced by keeping close tabs with the help of fire detection sensors, video surveillance, access control and intrusion detection sensors. Technology plays a key role in reducing the impact of these challenges and helps increase employee safety and security, while reducing property losses.

INVENTORY CONTROL

Warehouses face the risk of loss by fire, water damage and theft. This leads to the business challenge of predicting and preventing damages which include very high-value inventory. Environmental damage can be prevented with the use of environmental sensors such as carbon monoxide detection, fire and smoke detectors, humidity sensors and so on.

Theft can be reduced with the use of intrusion detection sensors and access control devices that can help keep unauthorized miscreants from entering warehouses. This can help reduce theft from both external sources and employees. Other key features offered by monitoring companies such as remote virtual guarding and remote monitoring services can help reduce the impact of these risks.

EMPLOYEE PRODUCTIVITY

Revenue streams for manufacturers are directly impacted by low employee productivity. There are various factors that reduce employee productivity, such as;

- inferior or defective product quality
- workers compensation
- medical leave, and
- downtime

Employee productivity can be improved with the use of video surveillance, remote monitoring and virtual guarding by monitoring workers constantly to ensure that all steps in a process are followed cautiously. The use of physical and network access controls can be used to monitor tardiness and ensure that all workers arrive on time and work within established guidelines.

CONTINUOUS OPERATIONS

Manufacturing facilities operate on a 24-hour cycle with three shifts of employees each day. Shift work presents various challenges that lead to reduced employee safety. The nature of work can lead to high incidence of tired workers and lack of safety in the parking lots at night. Quick reaction to tired workers can help supervisors maintain quality and increase employee safety. Employees are vulnerable to attacks and accidents in parking lots at night. The use of video surveillance, remote monitoring and virtual guarding can reduce the incidents of threats and keep employees safe and secure.

TECHNOLOGY SOLUTIONS TO ADDRESS BUSINESS RISKS IN THE MANUFACTURING AND WAREHOUSING INDUSTRY

Chart 1.2: Monitoring Solutions to Address Business Issues

Business Issues	Technology Solutions	Value Added Services
Heavy Equipment	<ul style="list-style-type: none"> • Video Surveillance • Access Control • Intrusion Detection • Fire Detection 	<ul style="list-style-type: none"> • Remote Viewing • Web-based Monitoring and Control
Inventory Control	<ul style="list-style-type: none"> • Video Surveillance • Intrusion Detection • Access Control • Environmental Sensors 	<ul style="list-style-type: none"> • Remote Viewing • Virtual Guarding and Monitoring • Web-based Monitoring and Control
Employee Productivity	<ul style="list-style-type: none"> • Video Surveillance • Network Access Control 	<ul style="list-style-type: none"> • Remote Viewing • Virtual Guarding and Monitoring
Continuous Operations	<ul style="list-style-type: none"> • Video Surveillance • Mass Notification Systems 	<ul style="list-style-type: none"> • Remote Viewing • Virtual Guarding and Monitoring

ACCESS CONTROL

Old-fashioned keys and combination locks present several security issues. Employees are reluctant to use them, often propping open doors, because they are time-consuming and awkward. In addition, locks and combinations are changed with each employee lay-off, affecting all employees. With an electronic access control system, an approved employee can simply swipe his/her card to re-enter. If a card is lost or an employee leaves, simply disable the card and issue a new one. Biometric-based access control solutions offer even tighter exterior/interior control.

ENVIRONMENTAL PROTECTION

Manufacturing operations require constant monitoring to protect employees and property against excess levels of water and carbon monoxide, as well as extreme temperatures and other related conditions. Environmental sensors are integrated with video surveillance and other security technology to monitor many of these conditions 24/7, whether the system is armed or not. Integrate traditional monitoring with Web-based control and monitoring for remote notification via e-mail, cell phone or PDA.

FIRE PROTECTION

Fire and life-safety codes are becoming increasingly complex for businesses. Manufacturing and warehouse owners and operators can take advantage of local, technical expertise and products that help ensure the safety of their businesses and employees and compliance with local, state, and national requirements. Fire protection systems are designed to detect heat and smoke 24/7, even when systems are not armed, and monitoring personnel can coordinate with emergency authorities to provide manufacturers with the fastest response possible when critical.

INTRUSION DETECTION

End users can add an intrusion system to fire, access control, and video surveillance to build a completely integrated security system that's monitored by specially trained operators at a 24-hour, UL Listed Business Security Center. Some of the equipment used to detect intrusion, helping to protect employees, inventory and equipment, include motion detectors, photoelectric beams, magnetic contacts, shock and pressure sensors, and glass break detectors,

MASS NOTIFICATION SYSTEM

Whether it's to alert people of an emergency or just a method of facility communications, an integrated intercom system will help secure the facility and provide direction to employees and customers.

VIDEO SURVEILLANCE

Video surveillance can help protect employees and assets. Owners and security personnel can work with vendors when choosing the appropriate indoor/outdoor camera and digital recording solution for the property. Users can control individual cameras' pan-tilt-zoom functions, enter recording commands, and simultaneously view high-quality live images from a single computer. Captured footage can be used as evidence in assisting investigations, understanding the nature of threats in a location or for training purposes.

NETWORK ACCESS CONTROL

Control and manage facility access from anywhere with an Internet-connected computer enhanced by network access control systems. Management can log in to view user information and access points, in addition to permitting or denying access by user, group, location, etc. Notifications, report compilation and fingerprint enrollments can be undertaken online.

VALUE-ADDED SERVICES TO BOLSTER TECHNOLOGY SOLUTIONS

REMOTE VIEWING

Manufacturing facilities can be monitored from almost anywhere by viewing live video from any connected camera on an Internet-connected computer. Monitoring operators and authorities can be provided real-time visual verification of actual alarm events from home or from across the country. E-mail messages with video images and before and after alarm activation are useful tools to understand incidents and future prevention.

VIRTUAL MONITORING AND GUARDING

No matter the location of manufacturing facilities, remote monitoring professionals can conduct remote, virtual surveillance tours of the premises from monitoring centers. With end-user permission, professionals can access and control cameras and recording systems and view your business inside and out, adding another layer of security to intrusion, fire protection and other sensors. In cases where facilities have security personnel present on location, the ability to combine virtual and physical guarding is a service that can help end users reduce costs and improve efficiency.

WEB-BASED MONITORING AND CONTROL

Web- and text-enabled monitoring, control and notification services usually include:

- State-of-the-art, central-station monitoring for intrusion, fire and other alarm events

- Ability to arm and disarm systems remotely via phone or computer
- Self-monitoring and control through a secure Web interface on any Internet-connected computer
- Text-message and e-mail notifications for alarm and non-alarm events (restricted rooms accessed, system disarmed)
- Available online remote video monitoring with event-triggered images sent to authorized computers or mobile devices – Web-based complements existing video surveillance to help monitor and manage employees and other internal risks.

UNIQUE CUSTOMIZED SOLUTIONS

Leading alarm monitoring service providers help design and execute a solution no matter what specifications and equipment are needed to do so. If information is not available in printed materials, briefing security consultants on needs can help direct employers in the right direction.

RETURN ON INVESTMENT IN THE WAREHOUSING AND MANUFACTURING INDUSTRY

While intrusion and fire monitoring systems are understandably basic needs for most manufacturers, we recommend companies create a projected Return on Investment before implementing a more robust physical security system. One of the primary objectives of ROI in the warehousing and manufacturing industry is calculating the direct impact of security systems in reducing risk and improving performance.

In order to identify the best set of features and functions to be installed, companies should expect their security service partner to provide a pro forma or projected return on investment to substantiate the benefits of the recommended security products and services. We recommend manufacturers seek out those security service providers who are willing to create the appropriate ROI business case, and to avoid those providers lacking the skill or expertise in projecting a positive return.

This projected return on ownership of the installed systems is based on the total cost of ownership compared to the expected gains in productivity and reduction in losses or injury. The potential benefits that warehousing and manufacturing companies can expect to accrue include:

- Employee productivity (quality control)
- Impact on insurance rates
- High cost of inventory
- Reduces losses (internal and external theft)
- Reducing fatal and non-fatal injury downtime
- Improving worker safety and security

- Reduces fines for code violations
- Reducing impact of environmental damage
- Reducing costs associated with vandalism and graffiti
- Lower costs for training new employees (lower attrition rates)

A sample ROI calculation tool is illustrated below.

	Cost of Investment	Gain from Investment
Capital investment	xxx	
Operating expenses	xxx	
Employee productivity (quality control)		xxx
Impact on insurance rates		xxx
High cost of inventory		xxx
Reduces losses (internal and external theft)		xxx
Reducing fatal and non-fatal injury downtime		xxx
Improving worker safety and security		xxx
Reduces fines for code violations		xxx
Reducing impact of environmental damage		xxx
Reducing costs associated with vandalism and graffiti		xxx
Lower costs for training new employees (lower attrition rates)		xxx

$$ROI = \frac{Gain\ from\ Investment - Cost\ of\ Investment}{Cost\ of\ Investment}$$

Return on Investment calculations are based on the difference between gains from an investment and cost of the investment divided by the cost of the investment. A prospective ROI should be calculated based on intelligent assumptions of benefits, gains, and savings over a set time period (for most security equipment, 4-6 years). On average, it is expected that the return should break-even and begin to pay off over a 2-3 year time frame. This number is dependent on efficient use of the installed security systems and companies should expect some variability in returns depending on the unique circumstances of their situation. The use of highly-sophisticated and customized security systems help end users accrue greater benefits and would likely derive a positive ROI in a shorter time frame.

RECOMMENDATIONS AND CONCLUSION

Business issues cannot be solved by security technology alone. Training and boosting employee morale are other means to increase productivity and augment the bottom line. In addition to reducing losses, video surveillance can be used for training employees on best practices, service improvement and increasing customer satisfaction. Access control and intrusion detection systems help provide a safe environment in which to work and relax, leading to increased productivity among employees and increased customer satisfaction. As with any service industry, high levels of safety and security enable employees to focus on delivering quality service to customers.

Alarm monitoring companies provide hardware and software to help manufacturing and warehousing companies improve safety and security. Services range from quality hardware and software with value-added services that include remote monitoring, virtual guarding and access to Web-based monitoring. The key criteria to take into consideration are the ability to install hardware that delivers undiminished performance over its lifecycle, value-added services to improve safety and security, and the unmatched customer service.

Just installing equipment will not help companies reap loss prevention, life safety, and worker productivity benefits discussed in this paper. To get the desired results, companies should engage with service providers that offers the following capabilities;

- Security companies with expertise in the manufacturing and warehousing industry
- Proven experience with demonstrable client case studies and testimonials
- Security companies that undertake a consultative approach, those willing to come out and carry out comprehensive Risk Analysis and then provide a solution designed to meet specific end-user needs
- A security provider that listens and understands the end user's challenges and offers proven solutions.

End users should avoid dealing with security service providers that lack understanding of end-user pain points and steer conversations around products and services that the company offers.

The manufacturing and warehousing industry is an essential component of the economy. The current economic conditions amplify the importance of security technology to reduce losses and increase profitability. While it is difficult to calculate a tangible ROI on security, it is essential to use technology to solve some of the business issues impacting the manufacturing industry, namely use of heavy equipment, inventory control, improving employee productivity, and shift work. Increasing availability of customized solutions to address each of these business issues has helped manufacturing companies use technology to improve their bottom line.

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