**CHAPTER 39 - Industrial Hazards, Safety, and the Security Patrol Officer**

**OBJECTIVES**

* Define potential hazards and risks associated with working in an industrial or manufacturing setting
* Outline the various forms of workplace violence and motives that influence the risk of criminal violence in the workplace
* Show how the security officer can conduct security risk assessments and self -assessments to identify hazards in the industrial workplace
* Suggest methods to minimize workplace hazards and threats
* Explain basic fitness, health, and wellness issues relating to an officer's duties in an industrial setting

Much attention is placed on the role of the security officer as a member of a facility safety team. Indeed, this role is critical for prevention, reporting, and investigation of workplace accidents and the overall maintenance of a secure workplace. As other chapters in this book emphasize, the role of security personnel should also be focused on identifying those risks that may evolve into a critical safety condition.

While the security officer is tasked with the mission of facility safety, there are often significant circumstances where the officer's patrol duties expose him or her to direct and serious hazards. These can be industrial hazards that are taken for granted by those workers who function in a facility for many hours during a routine work week, such as maintenance, production, supervisors, or quality control personnel. However, the risk posed by these hazards multiplies for the security officer who may only patrol certain areas occasionally or for a limited number of hours per week, often alone and outside of normal facility operating hours. Statistics from the U.S. Bureau of Labor Statistics reinforce that potential injuries to security officers are more likely to result from falls, exposure to unhealthy materials, and industrial accidents than from violence or assault.

The security officer, by virtue of his or her position, assumes certain risks in the workplace where he or she patrols. Foot patrol of an industrial facility is a common responsibility for many professional security officers. This duty post is not often seen as challenging, technologically engaging, or even social or exciting. In fact, it is not too bold to refer to this duty post as less than glamorous. Yet, the need for an industrial security patrol will always be present. Whether an industrial facility is in full operation, vacant, or transitioning, the employment of a skilled security patrol person remains a necessity. The following chapter is aimed at providing the industrial security officer with information to perform industrial security duties safely while recognizing, and avoiding potentially life-threatening hazards.

**DEFINITION OF INDUSTRIAL HAZARDS**

The topic of security officer safety in the workplace generally calls to mind the use of self-protection and defensive tactics. Any act of violence or aggression against a security officer falls into the category of workplace violence. The FBI Critical Incident Response Group (2004) categorized workplace violence into four typologies:

1. Violent acts by criminals with no connection to the workplace (such as robbery or other crimes)
2. Violence directed at employees or others committed by clients or service consumers
3. Violence between employees, including against supervisors or executives
4. Violent acts against an employee by a nonemployee, particular to domestic or relationship issues

While the threat and danger of criminal attack (human threat) is present in every workplace, the industrial security officer will likely also encounter hazards - those conditions existing because of the physical and natural environment of the facility that may pose risk to the personal health and safety of those who come into contact with them. Industrial hazards are a form of risk that must be managed by the security force. These hazards create unique considerations for officers who must complete their patrol and duties while preventing personal injury, avoiding short-term and long-term health problems, and reducing potential risks to the facility and other officers. By observing certain practices, security officers can safely enhance their performance and enjoyment of their duties at industrial hazard posts.

To further expand on the distinction between threats and hazards, a threat definition should focus on the term "criminal," as in criminal attack or criminal event. Workplace violence as defined above is a significant and common type of threat, although the theme and emphasis of this chapter are that this is an overall rare occurrence.

Some common examples of workplace violence threats include:

• Domestic violence/ ex-spouse or lover violating a protection order

• Terminated employee enacting revenge on a supervisor or manager

• Drug dealing or gambling debts being collected

• Disgruntled worker sabotaging equipment to injure workers

Other types of criminal threats include:

• Burglary of office areas

• Theft of copper or other valuable metals

• Car theft

• Vandalism, trespassing, drug use, or underage drinking

These events are termed "threats" because they involve individuals on the facility property committing acts that a security officer is most likely to detect, encounter, and provide response to. The threat of violence toward the officer is present should the criminal decide to fight instead of flee the scene or surrender cooperatively to the lawful interventions of the officer. The professional security officer should observe the event, position him- or herself safely, and make an immediate notification to police or to a supervisor according to the post orders.

Unfortunately, some criminals will respond to any form of detection with violence. Among the many theories for aggression include cognitive links between authority figures and equipment (such as a security officer with radio or handcuffs) and discomfort caused by blockage of goals (such as escape or monetary gains of a burglary). This linkage may cause certain people to act quickly on the basis of emotions and without deliberation or forethought; such actions may result in violence (Bartol & Anne, 2008). Again, the Bureau of Labor Statistics reinforces that this is often a low probability for industrial security officers yet it is a threat that officers assume and must be trained to handle.

Threats may exist in remote oil fields, urban parking garages, retail stores, or logistic centers. One can't automatically assume that a warehouse in Guatemala or an electric sub-station in Montana is less vulnerable to crime than a pipeline in Nigeria or a hospital in Washington, DC. The volume of human contact and the value of assets are possible factors that raise or lower the likelihood of criminal violence upon a security officer; however, no site must be assumed to be without threat. Certain crimes require certain settings and the officer must recognize the possibilities for his or her specific location.

In the industrial setting, however, the risk of serious personal injury to a security officer lies in the conditions existing by virtue of the industrial and natural environment.

Table 1 outlines how the threats mentioned above and other common types of security posts can translate into industrial hazard examples.

**TABLE 1 Industrial Hazards**

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| **Oil Field** | Vehicle accidents caused by poor roads Attack from wild animals Slippery walking conditions from rain or oil spills  |
| **Urban Parking Garage** | Speeding cars Loose handrails Greasy or oil-coated surfaces  |
| **Ski Resort** | Severe weather Fire in lodges, cabins, or villas Avalanche or ice storms |
| **Logistic Center** | Heat exhaustion Deteriorating building construction Falling boxes  |
| **Hospital** | Radiological waste Wet floors Poor lighting  |

Indeed, these nonspecific examples cover only a few areas of industrial hazards. The hazards exist in the environment of the site — either manmade conditions or natural conditions — but do not directly involve criminal or violent actions of humans upon the security officer. These environmental risks, known as hazards, may be managed through commonsense awareness, training, and officer self-evaluation. The professional security officer must concentrate on being vigilant but not fearful of these hazards. The officer must be respectful of the hazard and not take further actions that increase his or her risk of injury. This respect not only applies to the immediate steps taken on every foot patrol but also to exposures and hazards that may affect the officer's long-term health. To achieve this, one must rely on the components that make an excellent security officer in the first place: five senses, personal instinct, and understanding one's own health and fitness.

**INDUSTRIAL HAZARDS, ACCIDENTS, INJURY, AND ILLNESS**

While factories, foundries, and heavy equipment manufacturing are a few examples we consider with the term "industrial," the types of hazards present are not specific to only the typical assembly production, or raw material processing activities of these sites. Schools, hospitals, logistic /distribution centers, high rises, shopping malls, chemical storage, energy facilities, parking garages, office /commercial, and high-tech research facilities are all examples of potentially hazardous environments.

Hazards can result in obvious slips and falls, poisoning, blunt force trauma, burns, heat stroke, hypothermia, frostbite, and broken limbs. Aside from potentially fatal injuries, especially when an officer is working alone, industrial hazards can result in long-term health problems such as hypertension and cancer. Disruption to an officer's natural sleep habits and exhaustion are common problems with officers working night shift or a second job. Abuse of caffeine, stimulants, and tobacco to cope with fatigue, will further detract from an officer's health. Abuse of alcohol to counteract stimulants, or to help with sleep problems, can lead to even further physical deterioration. The officer should always strive

to achieve the right amount of sleep, relaxation, and exercise necessary to perform his or her duties comfortably and safely. This is challenging to manage in our busy world, but it is possible to establish a sleep schedule that can be coupled with exercise and a healthy diet in order to reduce blood pressure and other unhealthy effects. In the event that an officer cannot effectively achieve the sleep necessary to perform the duties at an industrial facility, he or she should seek a change of assignment before being injured or possibly disciplined for poor performance.

Consider some of the following scenarios of actual hazards and how the security officers could have prevented or mitigated the resulting injuries. With many facilities employing multiple officers per post, the teamwork and supervision roles should not be ignored when also protecting fellow security officers.

1. A healthy 30-year-old officer started on a new night shift post at a 35-acre office complex. Without adequate sleep, he drank several caffeine energy drinks to cope with his exhaustion. Following a strenuous foot patrol of a parking lot area he returned to the command center and suddenly collapsed. His head struck the floor, causing a severe concussion that immediately resulted in a seizure. His body convulsed and his head again struck the floor, causing lacerations and significant blood loss. He was rescued by a fellow patrol officer and rushed to a trauma center by ambulance.
2. An experienced 60-year-old officer was working a mobile patrol post at a retail complex in the late evening. He exited his patrol truck briefly to check on an illegally parked car. Upon returning to his vehicle, he slipped on grease leaked from a tractor-trailer that had been parked in the same spot for several days. The officer fell hard on his right side and then managed to crawl back into his patrol vehicle and return to the security station. He was working alone at the time and the management of the site had not provided the officer with a cell phone or radio. The officer was in severe pain and went into shock from a fractured hip. His relief officer arrived an hour later and summoned an ambulance. In addition to the officer working without any communications, it was later determined that he did not have a flashlight and was wearing a hard-sole dress shoe with no tread.
3. A healthy 40-year-old officer suffered lung injuries while patrolling through an area containing ammonia gas storage tanks. The tanks had recently vented, and a warning alarm in the area had been disconnected for repair. She was working alone inside the facility and was away from her command center, where a working alarm indicator would have alerted her to the hazardous condition. The security officer on the prior shift had also failed to document the verbal instructions from the maintenance director that patrols in that area should be avoided due to safety issues. She was quickly rescued by cleaning personnel who recognized her distressed breathing. Her injuries terminated her ability to work.
4. An overweight and diabetic young contract security officer returned to the reception post after completing a walking patrol and lockdown of three warehouse and production buildings. It was a hot summer day and the officer began to experience chest pains. He was relatively new to the post and had difficulty locating the phone number for the command center that he was required to call if there were any emergencies. He instead phoned his branch office, located an hour away, and reported that he felt ill. He was unable to transmit further information and it took the office personnel nearly twenty minutes until they could confirm his location and dispatch a patrol officer /EMT to assist him. It took the patrol officer nearly 40 minutes to reach the site, and he soon determined that neither the officer in distress nor the receptionist at the branch office had summoned an ambulance. Fortunately, a fire station was less than half a mile away and within 1 minute of calling 911, the patrol officer and firefighters managed to stabilize the patient. His condition was directly attributed to his health and the exertion of the post.

The above examples are only a few situations of hazards that could impact a security officer. Additionally, all of these situations could have been prevented by a combination of proper training, equipment, and personal vigilance by the officer and his or her peers. While none of these incidents involved gruesome injury or horrific death, the events all had a significant life-changing impact on the officer. Again, these incidents were preventable.

The officer in the first example should have prepared for the new shift by adjusting his sleep cycle and reducing his caffeine intake. His peer officers should have recognized that he was not rested and alert and assigned another officer to that patrol. The officer in the second example was not provided with the necessary basic communication tools and flashlight, and was not wearing the proper footwear. In the third example, the officer entered an area that should have had a warning sign posted and her prior officer did not properly document and pass down the safety instructions. She was working alone inside a facility and was without proper communications or monitoring. In the fourth example, the officer was unfit for duty at this post and by not taking steps to pace himself or drink enough water, he further aggravated his health situation. The fact that he was poorly trained and also in distress, further hampered his ability to obtain assistance quickly.

The cost to each officer was significant but there was also a latent cost to the facility or contract security company through worker's compensation payments and overtime to fill the shifts left vacant from the injured officers. Consider these additional hazards that were clearly recognized by the security officer and therefore should have been avoided:

* Officer bitten by ticks on two occasions while patrolling a perimeter fence line with heavy grass and vegetation
* Officer injured her back while holding open a heavy steel door at a bank
* Officer slipped on a tiled floor in an elevator because he had snow packed into the tread on his boots
* Officer suffered carbon monoxide poisoning while using a kerosene heater inside a guard shack with poor ventilation
* Officer stepped on a loose metal floor plate that tipped, causing the officer's leg to plunge into a drainage channel, resulting in ankle, knee, and back muscle injuries

An officer should not assume that the employer or supervisor would clearly recognize all hazards. Events that result in injury will not always result in corrective action. Unfortunately this is the nature of business and industry. However, the officer should utilize all legitimate means to report new and potentially unrecognized hazards to his or her supervisor through the proper chain of command. While some facilities do not allow security officers to take corrective action on safety or maintenance matters, the security officer must recognize his or her responsibility to the protection of others, including fellow security officers. If a loose floor plate can be safely repositioned, for example, the officer should take action. The officer should also provide for his or her own safety and comfort through a minimal investment in comfort or safety supplies. A good insect repellent could prevent tick bites. A small pocket flashlight could have helped the officer recognize the loose metal floor plate. The self-protection section of this chapter will further discuss personal equipment for the security officer.

**RISK ASSESSMENT**

Risk assessment is a thorough, comprehensive, and ongoing evaluation of the key assets, threats, hazards, vulnerabilities, and procedures in place to protect a facility from loss. While risk assessment sounds like a huge task that should be undertaken by a security supervisor or director, it is actually an important skill that should be developed and practiced by the industrial security patrol officer as well. Security managers and consultants utilize customized checklists and formulate formal reports when conducting a facility risk assessment. The patrol officer, by direction of post orders and patrol duties, is an extension of the risk assessment, particularly in the ongoing evaluation stages (known as auditing).

Much of what is written about risk assessment actually pertains to threat assessment and the determination of crime probability, or likelihood of criminal attack or events. The more accurate definition of risk assessment takes on what is known as a whole hazards approach, incorporating crime along with the numerous other possible events and risks beyond crime that can impact a facility. Risk assessment should address any event or condition that could create a loss to the facility.

Human life should always be considered the most important asset at a facility. Secondary to human life, risk assessment should identify those assets that are critical to the operation of the facility. Certain employees within the facility, such as executives or plant engineers, may be particularly valuable assets as well.

The whole hazards approach seeks to identify the negative things that can occur to the key assets as well as the likelihood that specific events will occur to those assets. For example, the assets listed above are all obviously critical to the facility and post duties and instructions in many ways refer to crime prevention and crime detection priority for the patrol officer. But assuming that industrial environmental hazards are more likely than crime, consider some potential events that could cause a loss aside from crime:

• Smoke and fire.

• Water leaks and flooding.

• Vehicle accidents and vehicle fires.

• Medical emergencies.

• Structural failure and building collapse.

• Fuel leaks.

• Dangerous debris, vegetation, tree limb hazards.

• Weather-related conditions.

• Smells from chemicals, solvents, malfunctions.

• Asbestos and airborne contaminants.

• Hydraulic leaks.

• Appliance failures such as office, refrigeration, or cooking equipment.

**SELF-ASSESSMENT**

The professional security officer should recognize the value and process of the risk assessment and practice this daily while patrolling the facility. When viewing the facility from a crime prevention angle, security officers should ask themselves, "What are some things a thief might want to steal inside this facility? Where are some places that I would hide if I were a burglar? If I wanted to bomb or sabotage this operation, what target would I choose?"

But when viewing the facility from the broader whole hazards vantage point, the questions an officer should ask are elemental:

• Where are the fire alarms and emergency exits?

• Do I have a flashlight and is there emergency lighting if the power goes off?

• Where is the safest place for me in a tornado?

• Do I know how to shut off the water supply if a pipe bursts?

• Can I get locked inside any rooms?

• Who do I call if this machine malfunctions?

• What labs should I avoid because of the chemicals?

• Where is it dangerous for me to walk?

• Is it necessary to check the outside perimeter at night if there are video cameras?

This self -assessment process assumes a higher order of thought and should be undertaken regularly once the officer is oriented to his or her site and knows the patrol routes and procedures. Much of this becomes common sense and second nature to the officer and within a few months it may become subconscious. An important aspect of the self-assessment must be for the officer to recognize what hazards exist by virtue of the officer's presence in the facility.

• Rooftop patrols.

• Climbing scaffolding.

• Improper monitoring by command center.

• Lack of training regarding weak spots on walkways or paths.

• Traversing through active production areas or maintenance activity.

• Vulnerabilities from torches, demolition, or vehicles.

• Overhead hazards such as ventilating gases or falling pipes.

• Unnecessary patrol through active areas not requiring security presence.

There is also a distinction between officer-created hazards - being in the wrong place at the wrong time or just being in the wrong place - and the officer's hazardous behavior.

While the former assumes that the officer is attempting to do his or her job thoroughly, and may become inadvertently entangled or exposed to a hazard, the latter engages in risky or consciously unsafe or foolish behavior.

A significant number of workplace injuries result from unsafe acts, showing off, or otherwise blatant disregard for personal safety. Among these is the hazard of driving a vehicle on patrol. Mechanical failures, accidents caused by the other driver, and that aside, we all have a tendency to sometimes push the abilities of a vehicle. The definition of vehicle can vary from a Segway to bicycle, to pickup truck to motorboat. It is easy to forget, or ignore, basic safety equipment such as a helmet or seatbelt. The use of cell phones and text messaging devices is also another factor that contributes to accidents.

Speeding, choosing impractical routes, and laziness are major causes of preventable accidents.

Other hazardous behavior includes operating forklifts, cranes, or equipment without proper training or authorization. Officers must overcome their curiosity about such equipment in order to avoid injury. In a complex industrial setting, many machines may be linked through one electrical system. The key or switch that is used to start or activate a particular piece of equipment may not be the same key or switch that turns the equipment off or shuts down the process.

Exploring electrical switching rooms or confined and underground spaces is extremely hazardous, as is climbing or descending ladders. Another bad practice, with good intentions, is exercising while on patrol. Officers who jog, use raw materials as free weights, or hang from scaffolding to do pull-ups are at significant risk of injury.

Smoking while on patrol is extremely unwise because it interferes with one's ability to smell smoke, gas, or other olfactory hazards.

Just as the risk assessment process prepares the officer for knowledge of key assets and potential hazards, the officer should also understand what could happen to the facility and others if he or she is injured or killed as the result of a hazard. More important, the officer should recognize the impact if he or she is unable to perform the duties as a result of a hazard they created or from hazardous behavior.

The following are generic suggestions for minimizing hazards and threats (this list is not specific to any particular environment):

* Use caution when approaching partly open doors or overhead loading doors.
* Do not eat or drink except in approved areas to avoid risk of food poisoning.
* Turn off coffee pots and appliances when empty or not in use.
* Always use a handrail when ascending or descending stairs.
* Move slowly and carry a flashlight.
* Watch out for open areas that may not be marked and areas that were closed or sealed yesterday that could be open today. Avoid falling into pits and drainage tunnels.
* Avoid the curiosity of patrolling in restricted or marked danger areas.
* Stand clear of high-speed roll-up doors and forklift traffic.
* Avoid greasy areas that are slip hazards. Also, avoid wearing greasy shoes into your home or vehicle.
* Be aware that some work areas are abandoned when the shift ends and workers will leave tools and parts lying on the floor, posing a trip hazard.
* Never enter or tamper with vehicles, storage areas or tool cribs.
* Be careful of stairs, catwalks, and scaffolding.
* Padlock controls are important tools for loss prevention but also to control access and preserve housekeeping. Report all padlock issues immediately.
* Avoid confined spaces.
* Avoid walking on uneven floor plate steel decking or areas where the floor is concealed by wood or cardboard.
* Always know the work area and location of emergency exits.
* Avoid dusty areas or enclosures where known pollution cleanup work is being performed.
* Avoid forklift traffic areas such as ramps and blind corners. Give the forklift the right of way unless the operator stops, makes eye contact, and motions you by.
* Observe foreign object debris (FOD) and make sure that the walkway is clean before making access or others approach.
* Avoid treacherous walkways, bridges, or paths with no railings or over deep holes.
* Never cross or walk on bent or bowed flooring.
* Know what hazards exist to the exit doors. There may be machinery, FOD, and protruding raw materials. Attempt to keep exit pathways clear.
* Avoid overhead cranes, tilting loading docks, or walking under elevated lift trucks and boom lifts.
* Don't approach trenches and other areas where work is in progress.
* Be aware of doors that are welded closed, bolted shut, or temporarily barricaded with 2X4 boards.
* Be cautious of steep ramps and pitted or uneven walkways.
* Unexplained water may not be a concern, but running water /flooding areas and water running onto electrical panels could be treacherous.
* Be familiar with HAZMAT areas and also with HAZMAT signs that no longer apply. This may be needed in case of an emergency to guide the fire department.
* Avoid entering work areas from narrow hidden walkways.
* Never walk through any liquid if it can be avoided.
* Choose to walk over concrete flooring rather than temporary flooring or wood or metal grates.
* Be aware that diamond plate steel flooring is designed for traction but when it is wet, or coated with grease, it becomes very slick and dangerous.
* Be careful of patches in flooring, cracks in concrete, and areas of new construction where walkways may be unfinished.

**SELF-PROTECTION**

In addition to awareness of site hazards and the ongoing evaluation as described in the risk assessment section above, there are two areas where the professional industrial security officer must take personal responsibility: fitness for duty and personal safety equipment.

Fitness for duty refers to an officer's personal physical and mental ability to perform the duties of the post. As mentioned in the beginning of this chapter, much of the patrol duties involve walking. In fact, a patrol can involve significant amounts of walking at a slow and steady pace. In large industrial facilities, the officer may use a combination of foot patrols inside buildings and vehicle patrols between buildings. Some sites may require an officer to walk as many as 6 or 7 miles per shift. This requires some stamina, especially if the patrols require ascending stairs or hills.

The walking patrol is not an efficient method to cover a large amount of territory if there are numerous duties such as meeting visitors or contractors, or repetitively unlocking gates or storage areas. However, during off-production hours a walking patrol has fewer random demands and by walking through a facility, the security officer can check for unlocked doors, listen and smell for unusual conditions, and become comfortable in the environment. This allows a thorough and careful evaluation of the many types of industrial hazards previously discussed.

When walking at a moderate pace for several hours, it is possible to cover many miles and for the body to burn hundreds of calories. You should eat wisely to avoid food that is filling to the point of discomfort. Carbohydrates such as bread and grains are a good source of energy. Fruit and plenty of water or electrolyte drinks are important in both hot and cold weather. Getting in shape for a walking post is not always possible but once walking becomes part of your job, you should consider walking and exercising during your days off as well. If you have medical issues that impact your ability to walk or your fitness for duty, discuss these with your supervisor to see if accommodations are possible. Some industrial sites have an electric cart available to save the officer from fatigue. At other sites it is not possible to use a cart or other conveyance and walking is required.

Remember that when on a foot patrol your primary responsibility is to protect the facility from all types of losses. When encountering workers, be pleasant and professional but not overly social. It is best not to develop close relationships with people outside of the security department as this will allow you to act objectively and appear fair and impartial. The relationship that employees have with security officers varies by the culture of the facility and the size of the workforce. You will want to appear approachable should someone need your assistance but do not treat the workplace as your social network.

As the first line of defense between the facility and the public, you should appear alert, well groomed, and physically capable. You are not a police officer, however, and if you wear a uniform and a shield or ID badge, the purpose is to make you recognizable but not to intimidate or project law enforcement authority. If there are individuals on the property that do not appear to belong, your confident presence and polite request for identification according to the post orders, should go a long way in preventing loss. If you appear to be out of shape or intimidated, you will negate the effectiveness of the entire security department and may also lead yourself into a dangerous situation.

In addition to the physical demands of foot patrol, the industrial facility has significant differences from other, more open, posts. These include the presence of equipment, running air compressors that start and stop depending on pressure or demand from other parts of the plant, humming electrical transformers, random buzzers signaling break times, dead silence, pigeons and rodents, and loud clanks and bangs as metal buildings expand and contract. Several excellent and free health tips may be found on the Internet or via your local YMCA or private fitness center, but fitness for duty is a commitment that can be achieved through a daily 20-minute workout and a low-fat, vitamin charged diet.

Perhaps one of the most heavily broadcast industrial health hazards has been asbestos exposure. Asbestos cancer, known as mesothelioma, is caused by a scarring of the deep lungs or stomach due to asbestos exposure. According to the Mesothelioma Center (http:www.mesotheliomacenter.org), not all exposures will result in illness or cancer; nonetheless, once a person believes they have been exposed to asbestos, they should report this to their physician for further monitoring. Asbestos is a mineral product that has been used in mining, milling, foundry operations, and other manufacturing. The Mesothelioma Center's website contains details on exposure risks, health effects, legal updates, and products and locations where asbestos can be located. It is the employer's responsibility to protect workers from exposure health risks, so the industrial security officer should pay attention to such information. It is the officer's duty, to himself or herself, to be vigilant and self-protective. If an environment becomes harmful or the officer notices significant unhealthy symptoms, they should consult their supervisor as well as a physician.

The final piece of advice for the comfort and safety of every security patrol officer is regarding footwear. As previously mentioned, an officer is far more likely to be injured from a fall than from a violent assault. Boots and shoes can be an expensive investment for many officers. Discounts and copayments for footwear by the employer or contractor should be considered, along with recommendations and on-site safety policies regarding foot protection. Steel toe and safety shoes can be heavy and uncomfortable if not properly fitted and broken in. In many cases, the ideal style may not be available in a color that matches the officer's uniform or in a style that is personally preferable. Consider that in an industrial setting, most boots will become severely worn and blemished and that fashionable appearance must be sacrificed for safety.

Law enforcement and military-style boots can cost over $100 but may not be durable in some industrial settings. These boots should fit comfortably and provide a flexible tread with reinforced shank protection. Most of these boots are waterproof, insulated and enhanced with special vapor barriers and breathing membranes. With proper care and careful walking, the officer may be pleased with the investment if he or she understands that exposure to grease, oil, dust, and metal will challenge the upkeep and appearance.

Sneakers and dress shoes should be avoided in an industrial setting. This includes the popular black tennis shoes often acceptable in uniformed professions, including security posts in less hazardous settings. Tennis shoes typically are comfortable for walking moderate distances but do not afford the protection or support necessary for industrial settings. Uniform dress shoes may also be comfortable, but the soles of these shoes are far less safe for industrial patrols. If a patrol officer spends over 7 hours behind a console, but must be prepared to leave that post for 1 hour to cover a patrol, escort, or inspection elsewhere, the minimum choice for footwear should be for the most hazardous possibility. If the officer's duties involve significant walking, the boot or footwear selection must provide sturdy comfort or the result will be severe knee and back pain.

Layering or doubling socks can help add comfort and absorb perspiration. A frugal option that many officers choose involves purchasing a low- to mid-cost black leather boot with either a 6- or 8-inch ankle, typically found in discount retail stores. These boots are usually waterproof and insulated with 200 grams of Thinsulate. To compensate for the low-cost comfort, the boot can be greatly improved with a full insole and arch insert, as well as a heavy-duty appropriate length bootlace. Effectively, this inexpensive boot can be transformed into the comfort, safety, and performance necessary for the officer's duties. When the boot is blemished or damaged with oil or solvents, the insoles and bootlaces can be transferred to replacement boots. If footwear damage and expense are concerns, the security officer may find this option to be a minimum of three times more economical than investing in a law enforcement or military-style boot.

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| **EMERGING TRENDS** |
| Security in the industrial and manufacturing setting relies on the same protection concepts as other locations, namely, deter, deny, delay, and detect. Technology continues to help us with these objectives and if properly implemented, technology can accomplish these goals while decreasing the risk of harm to the security patrol officer. Digital video analytics, computerized guard tour matrixes, and unmanned or robotic patrols are just a few examples of future security technology that could be used to save lives and increase efficiency. Among these, digital video analytics holds the greatest potential to improve the detection capabilities of the weakest link in the security program — the human security officer. Instead of a security officer walking through a hazardous industrial setting, the computer can detect changes or predesignated conditions within the video camera field of view, interpret those conditions, and begin a preprogrammed response plan such as notifying a security officer or sounding an alarm. For example, video analytics can detect motion along a remote fence line, but instead of simply recording the activity, the software monitors the activity and can detect if the subject is moving parallel to the fence or crossing the fence as an intruder. Video analytics holds the potential for detecting industrial accidents, for instance, workers who may be unmoving and injured on the floor, or detecting changes in the number of persons in a specific area, as in a fight or disturbance in a cafeteria. Video analytics may even be programmed to detect the absence of required personal protection equipment such as hard hats or safety lines, not only indicating a risk to workers but also the potential presence of an intruder. Digital video analytics allows the security officer to detect activity around high value assets while also providing clear real-time images of the activity that can be later retrieved for use in an investigation. The need for a security officer to sit for long hours and view monitors with no activity is also eliminated, therefore freeing the officer for other patrol functions, such as a visible perimeter patrol that may serve as a deterrent. In the event of an incident or alarm, the system can transmit information to a remote security officer for his or her attention. Digital video analytics has the potential to monitor movement of people and materials in specific directions, as well as in predetermined zones that are off limits. Physical locks, signage, fences, and lighting will remain important for facility protection, but the potential of technology will help improve detection abilities for the industrial security officer while reducing his or her risk of harm or exposure to dangerous circumstances. More information on video analytics is available on the Internet or at http:// www.pelco.com/ software/videoanalytics/(offering no particular affiliation or bias regarding Pelco).  |

**SECURITY QUIZ**

1. The definition of a hazard specifies those conditions in the physical or natural environment which can harm the security officer.
2. True
3. False
4. An example of workplace violence may include when a security officer is surprised and attacked by a burglar in a warehouse.
5. True
6. False
7. Environmental risks are unavoidable regardless of the officer's training and self awareness.
8. True
9. False
10. Most injuries to security officers are a result of falls.
11. True
12. False
13. The security officer must make personal choices in health and fitness to help them adjust to a hazardous environment.
14. True
15. False
16. A security officer's supervisor or a member of facility management should be relied upon to identify and communicate all hazardous conditions.
17. True
18. False
19. Risk Assessment is a thorough, comprehensive, and ongoing evaluation of the key assets, threats, hazards, vulnerabilities, and procedures in place to protect a facility from loss.
20. True
21. False
22. Risky behavior or improper operation of equipment by the security officer are a few examples of environmental hazards.
23. True
24. False
25. The most important asset that should be protected within a facility is the security command post.
26. True
27. False
28. Durable, safe, comfortable footwear is a key piece of personal safety equipment for the industrial security officer.
29. True
30. False