

Marina Security Considerations



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What is security?

1. Freedom from risk or danger; safety.
2. Freedom from doubt, anxiety, or fear; confidence.
3. Something that gives or assures safety, as:
 - a. A group or department of private guards: Call building security if a visitor acts suspicious.
 - b. Measures adopted, as by a business or homeowner, to prevent a crime such as burglary or assault.

The level of security is the degree of protection against danger, damage, loss, and criminal activity.

Security as related to marinas would therefore include:

personal safety	assault, hazards
property damage	caused by vandals, fires, storms, other
theft	from boats, storage and other marina property
vandalism	defacing or damaging property; vagrants.

It hasn't reached epidemic proportions yet, but crime is a growing threat to recreational boating. Theft of boats and expensive hardware and electronics is increasing. Less serious crime, like petty theft and random vandalism, is even more prevalent. Today we also have to be on the lookout for potential Terrorist activities.

Marine crime prevention, like home or business crime prevention is mostly a matter of anticipating potential risks and eliminating them. **Most crimes occur when a criminal finds a safe and easy opportunity to strike. Remove the opportunity and you usually prevent the crime.** Even in the high-risk settings, aggressive prevention makes successful attacks unlikely.

The level of security necessary at a marina obviously depends on the size of the property, where it's located and other local issues.

Security Guards

Most larger harbors have Patrol personnel who provide a combination of safety and enforcement 24/7. Smaller marinas usually rely on the marina staff during the day and security guards overnight. Some marinas have their live aboard tenants organized as a neighborhood watch.

Lighting

Good lighting goes a long way to deterring crime and vandalism. In some cases lighting can be triggered by infrared beams or other types of motion sensors. Lighting is also an important factor if video cameras are installed.

VIDEO

Digital vs Analog:

Video camera technology has evolved significantly over the past 5-10 years. Analog cameras that connected to VCR and DVR recorders are becoming a thing of the past. Most of the new technology is digital TCP/IP and uses Network Video Recorders (NVR) or PC based recording and management software.

Many of the camera systems installed in the past were of little or no real value because the picture quality was poor and had little depth of field. In some cases it was difficult to identify the make and model of the vehicle, let alone the driver or license plate number. Typical recording devices recorded continuous video even if no motion was present, so searching for activity was time consuming.

Today's cameras have much better picture quality and the systems use more sophisticated DVR's, NVR's and PC based software, typically only recording "events" such as motion or alarms.

Cameras typically work in good light conditions, but some are rated for low-light and others have infrared or night vision. Few cameras work in both day and night conditions. Most are for indoor applications and need to be enclosed in weatherproof housings with blowers and heaters. Some cameras are built specifically for outdoors.

Cameras come in all shapes and capabilities



Fixed vs PTZ:

There are two primary types of video cameras; fixed and pan-tilt-zoom (PTZ).

Fixed cameras continually monitor a given area and can capture all activity that may occur. They have various resolutions and depth of field; some have optical zoom and others have day and/or night vision.

PTZ cameras move right, left and up, down. They are configured with “presets” and move (patrol) from one pre-set location to another at pre-determined intervals. The patrol sequence can be overridden by an operator to manually control the camera as needed. When done, the patrol sequence will resume.

The benefits of a PTZ camera are that it will cover a wide area and each pre-set should have good picture quality. The drawback is that pre-set locations not being viewed during the patrol sequence will not display or capture any activity in those sectors.

Today’s PTZ cameras produce very good quality color images based on their optical zoom and image resolution capabilities. There are some “fixed” cameras with optical (internal) pre-set capability.

Marinas need good quality cameras for use outdoors in both good and inclement weather. The PTZ cameras need to be in durable outdoor housings with fans and heaters where applicable. All cameras need to be securely mounted and have image stabilization to keep the images from blurring due to wind induced pole/mount vibration.

Digital cameras typically connect back to a DVR, NVR or PC with Cat5 cables, so good quality wireless links need to be substituted for cables where appropriate.

Variables such as resolution, field of view, night-time performance, and weather and vandal resistance vary greatly between products, as does cost.

DVR/NVR vs PC Video Management System (VMS)

Utilizing a digital video recorder (DVR) or Network Video Recorder (NVR) have distinct advantages over traditional time-lapse VCR’s for surveillance video recording. There are three distinct types of video recording devices; standalone (DVR), networked or PC-based.

The basic function of any recording device is to record video to some type of memory for future viewing. A stand-alone surveillance DVR accomplishes this in a compact box type unit with CD’s or Hard Drives. DVRs are very similar in appearance to a consumer DVR or DVD player, and contain all the necessary devices, software, and components needed to facilitate the recording process. The drawback is that they require a Monitor and keyboard of some kind to search and view the images.

DVRs that are built as standalone models are very simple devices and reasonably effective at recording streaming video. All the streaming video is recorded, which consumes “memory” and requires more “search” time.

Software based DVR’s are referred to as Network Video Recorders (NVR) or Video Management Systems (VMS) and are typically browser (network) based. They can manage multiple types of cameras, have more control and recording options than simple DVR’s. A good NVR or VMS will only record video images if motion is detected in given (selectable) areas or if an alarm or event is reported.

The NVR or VMS will display video film clips based on date, time and location requests. NVR and VMS systems usually just manage video, but can also integrate with access control systems in various ways.

ACCESS CONTROL

Marinas vary greatly in size and complexity. Some marinas may have vehicle gates, dock gates, restroom doors and even fish hoists, pumps or other equipment that need to have controlled access.

Marinas are accessible by land and sea. Only the land side lends itself to some form of controlled access. Some marinas are fenced, but most are not.

Some marinas have vehicle gates to control access to the marina parking area. The vehicle gates may be open during the day and closed at night, requiring a key or key-card for access. Some marinas have dock gates with door locks and others don't.

Door locks range from manual keyed locksets and mechanical code locks to various electronic types such as, electric key-pad locks, electric strikes, dead bolts or magnetic locks.

Mechanical locks:

Hard keys, mechanical locks and some electric keypad locks do not allow for activity tracking or easy de-activation of specific key-codes. However, they are relatively inexpensive to purchase and install.



Standalone Electronic door locks:

The next level of electronic door locks use a handheld programmer to upload key-card (user) information to the lock and download activity (history) data. The handheld programmer plugs into a PC to have the data loaded and unloaded. All the User and History data is maintained in the PC for future reports.

Some lock manufacturers now have WiFi versions of electric handled locksets that link back to a PC in the office. They require a good line-of-sight for the WiFi connection and most require their own proprietary components; not standard WiFi.



Key-pad & prox reader



Handheld programmer



Key-pad - wireless

None of the electronic locks hold up well in the outdoor marine environment.

Electric door frame locks:

The most common electric locks used with integrated security access control systems are electric door strikes, electric dead-bolts and magnetic locks. The strikes and dead bolts are installed in the door/gate frame and take the place of the standard strike plate. The magnetic locks usually attach on the top of the door frame.



Electric strike



Electric dead-bolt



Magnetic lock

Electric locks are usually powered by 12/24 volts DC and are either Fail Secure or Fail Safe. Fail secure locks (electric strikes) require power to unlock. Fail safe locks (electric dead bolts & magnetic locks) require power to be locked. Fail secure electric strikes draw only draw power when unlocked for 3-5

seconds and the control panel can be battery backed up. Fail safe locks draw power continuously until unlocked for 3-5 seconds and would require large batteries to back up the control panel and locks.

Integrated systems:

The most useful security access control system are integrated systems where the access points (doors, gates, equipment) have local controllers that are connected back to a master controller in the office.

The master controller is typically a PC based system that contains all the User, key-card and history data. The door/gate controllers are on-line to the master controller at all times, so new key-cards can be entered, de-activated or re-assigned at the office in real-time. All access attempts get recorded whether the card was granted access or not.

An integrated system has the capability of creating User Profiles that define where and when a key-card will be granted access. A boater may have access to B dock and the restroom facilities, but not A dock or the office door. A delivery driver may only have access to the vehicle gate from 8 to 5, not the restrooms.

Integrated systems also have the capability to automatically control doors, gates and equipment usage. A set of public restroom doors could be unlocked automatically from dawn to dusk for public access. A boat hoist may only be accessible from 8am to 7pm.

Readers and Cards:

Access control card readers, key-cards/tags are available in a number of difference formats, styles and shapes. There are swipe card readers for magnetic-stripe cards, insertion readers, proximity card readers, biometric readers for finger or palm prints, eye scanners and more.



Proximity Readers



Proximity/key-pad



Swipe card

The most popular cards and readers for access control are proximity key-card readers because they are weather proof and easy to use. Magnetic swipe cards are still the standard for financial transactions, like credit cards. Some proximity readers also incorporate a key-pad that can be used for transient boaters instead of issuing a temporary key-card.



Proximity Key-card



Proximity Key-tag



Proximity key-tag and transmitter

The combination remote transmitter (clicker) and key-tag are great for “clicking” in to a vehicle gate and also act as a proximity key-tag at doors and dock gates with proximity readers.

Reports:

Integrated access control systems (and others) provide a variety of history reports that can be very helpful in tracking activity related to incidents that occurred in a particular area, such as a restroom being vandalized.

Reports will show all key-card activity for the specified date and time, so persons of interest can be questioned about what they may have seen during that time period.

Some insurance providers may provide some form of policy discount based on installed security systems.

The police will ask for a history report from the security access control system as well as video clips that are pertinent to the incident they are responding to.

GATES AND FENCES

Marinas, ports and harbors may need to be “secure”, but they don’t need to look like uninviting “prisons”. Most older facilities with gates and fences were of the chain link variety, like those around construction sites.

They used knob type door locks, with or without, hard keys and many were upgraded to a dog-tag type of mechanical key that inserted into the door knob. They were unsightly at best.

The quest today is to build a functional and secure dock gate that is also appealing to the eye. We want the tenants to feel secure in a “resort” like gated community, not a prison.

Manufacturing of quality dock gates is not inexpensive, but if built and installed correctly the cost can be amortized over many years. The lower the cost and quality, the more trouble and annual maintenance expense.

Incorporated into the design of the dock gates are visual appearance, type of door and frame, strength and materials, wind loading and door closers, roofs and lighting.

Even if an electronic access control system is not included in the initial installation, the new gates should be built to accept electric strikes, card readers, access control panels and electrical. It costs much more to retrofit an existing "non-prepared" gate than it does to pre-configure one for later use.

Elaborate Dock Gates:



Vehicle Gates:



EQUIPMENT CONTROL

Most any type of electro-mechanical equipment can be integrated with an Access control system designed to handle those functions.

Key-cards/tags are used to turn on the power to equipment, either for a fixed or variable time period. Typically a card swipe will provide 15 or 20 minutes of power and then shut off. A card swipe can also be used to turn power ON and a second card swipe to turn the power OFF.



Marina Security

NOTES:
