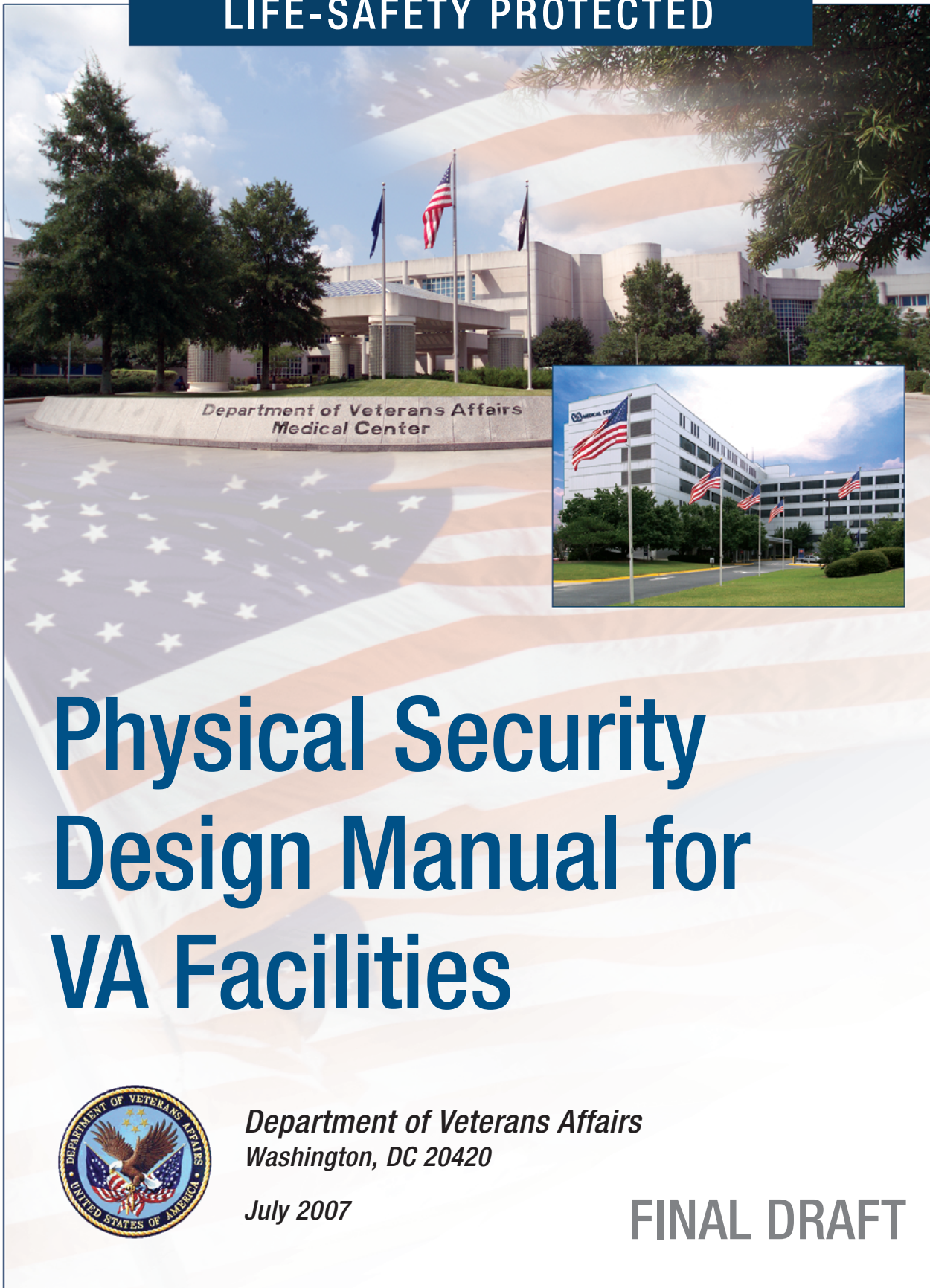


**LIFE-SAFETY PROTECTED**



# Physical Security Design Manual for VA Facilities



*Department of Veterans Affairs  
Washington, DC 20420*

*July 2007*

**FINAL DRAFT**



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# Introduction

## 1.0 PURPOSE

*This Manual contains the physical security standards for improving the protection of life-safety protected facilities of the U.S. Department of Veterans Affairs (VA). Life-Safety Protected facilities are required to protect the life safety of the VA patients, staff, and visitors in case of an emergency. Although indispensable to the mission of the VA, these facilities are not required to remain operational during a natural or man-made extreme event or a national emergency. Design and construction standards are provided for the physical security of new buildings, additions, and major alterations. In addition, recommendations and strategies are provided to improve the physical security for existing life-safety protected facilities.*

The requirements of this manual are to be coordinated with all VA design and construction requirements for the mitigation of other hazards, such as earthquake and hurricane, in order to complete a multi-hazard approach to physical security planning, design, and construction. Throughout this manual where it is mandatory that construction be in an area that is not subject to flooding, refer to the FEMA flood map information available at <http://www.fema.gov/business/nfip/fmapinfo.shtm>.

In order to meet the physical security standards of this manual the design team must include a security specialist as well as a structural blast specialist. These specialists must be experts and have a minimum of five years experience in physical security or blast design. This manual assumes the use of qualified security and blast experts.

## 1.1 AUTHORITY

It has long been the policy of the United States to assure the continuity and viability of mission critical infrastructure. Executive Order 12656, issued November 18, 1988, states, “The head of each Federal department and agency shall be prepared to respond adequately to all national security emergencies.” Furthermore, the “head of each Federal department and agency shall ensure the continuity of essential functions in any national security emergency by providing for: succession to office and emergency delegation of authority in accordance with applicable law; safekeeping of essential resources, facilities, and records; and establishment of emergency operating capabilities.” The Order also requires that the “head of each Federal department and agency shall: identify facilities and resources, both government and private, essential to the national defense and national welfare, and assess their vulnerabilities and develop strategies, plans, and programs to provide for the security of such facilities and resources, and to avoid or minimize disruptions of essential services during any national security emergency.”

Public Law 107-188, Public Health Security and Bioterrorism Preparedness and Response Act of 2002 enacted June 12, 2002, requires actions to enhance the readiness of Department of Veterans Affairs medical centers to enable them to fulfill their obligations as part of the Federal response to public health emergencies. Under section 154 the law specifically requires that the “Secretary of Veterans Affairs shall take appropriate actions to enhance the readiness of Department of Veterans Affairs medical centers to protect the patients and staff of such centers from chemical or biological attack or otherwise to respond to such an attack and so as to enable such centers to fulfill their obligations as part of the Federal response to public health emergencies.”

Public Law 107-287, Department of Veterans Affairs Emergency Preparedness Act of 2002 enacted November 7, 2002, requires that the “Secretary take appropriate actions to provide for the readiness of Department medical centers to protect the patients and staff of such centers from chemical or biological attack or otherwise to respond to such an attack so as to enable such centers to fulfill their obligations as part of the Federal response to public health emergencies” and that the “Secretary take appropriate actions to provide for the security of Department medical centers and research facilities, including staff and patients at such centers and facilities.” This Act also states that the “Secretary may furnish hospital care and medical services to individuals responding to, involved in, or otherwise affected by that disaster or emergency.”

38 USC Sec. 901 gives the Secretary the authority to prescribe regulations to provide for the maintenance of law and order and the protection of persons and property on VA property.

## 1.2 VA FACILITIES

The Department of Veterans Affairs (VA) is composed of a Central Office (VACO) and three administrations, the Veterans Health Administration (VHA), the Veterans Benefits Administration (VBA), and the National Cemetery Administration (NCA). VHA manages one of the largest health care systems in the U.S. In addition to providing health care, VHA also has missions to provide training for health care professionals; to conduct medical research; to serve as a contingency backup to DOD medical services; and, during national emergencies, to support the National Disaster Medical System (NDMS). VBA provides benefits and services to veterans including compensation and pension, education, loan guaranty, and insurance. NCA delivers burial benefits to veterans and eligible dependents. In total, VA provides a mission critical medical and economic infrastructure to the government and population of the United States.

Life-safety protected facilities shall include all of the following:

- Accessory Non-Building Structures
- Auditorium
- Biomedical Engineering (equipment and wheelchair repair)
- Canteen – Cafeteria
- Canteen – Retail Store
- Cemetery Building Chapel
- Child Care
- Clinical Services Administration Office
- Community-Based Outpatient Clinic (CBOC)
- Connecting Corridor Concourse and Bridge
- General Administration Office
- Greenhouses
- Laundry
- Library/Museum
- Maintenance Facility (Shops)
- Maintenance Storage (Equipment)
- Materials Management Storage
- Office
- Parking Garage
- Plant Outbuilding
- Post Office
- Quarters (Residential)
- Recreational
- School
- Student Housing
- Temporary Buildings
- Toilets (Outhouses)
- Training/Education
- Veterans Services
- Warehouse
- Waste Management (Incinerator and Recycle)
- Waste Storage

## 1.3 INTRODUCTION TO PHYSICAL SECURITY CONCEPTS

VA has adopted the low level of protection of the *Interagency Security Committee (ISC) Security Design Criteria* (September 29, 2004) for all new life-safety protected facilities. The *VA Natural Disaster Non-Structural Resistive Design* (September 2002) is subsumed and superseded by this physical security design manual. The physical protection strategies used to develop this manual are documented in the *Physical Security Strategies Report* (January 10, 2006).

### 1.3.1 Concentric Levels of Control and Protection

The physical security of facilities requires the use of concentric levels of control and protection to provide progressively enhanced levels of security.

**1.3.1.1 The first point of control** should be at the perimeter of the property consisting of fences and other barriers with one or two points of entry through gates controlled by police or other security personnel. In certain urban sites, the building perimeter may be on the property line. Increased levels of screening of persons and vehicles, as the Department of Homeland Security Threat Levels are changed, must be accommodated at the perimeter without burdening surrounding roads with vehicles waiting to enter the site.

**1.3.1.2 The second point of control** should be at the building perimeter consisting of doors and other openings protected as appropriate to the level of protection needed with or without the first point of control. This includes access control hardware, intrusion detection, surveillance, and, at selected entrances at various times, personnel for control and screening.

**1.3.1.3 The third point of control** should be to segregate with barriers and hardware generally accessible public and patient areas from staff-only areas such as pharmacy preparation, food preparation, sterile corridors, research laboratories, and building operations and maintenance areas.

**1.3.1.4 The fourth point of control** should be to segregate authorized from unauthorized staff areas with barriers and access controls such as card reader-activated hardware. Unauthorized areas may include patient records, laboratories, vivariums, and cash-handling tellers.

**1.3.1.5 The fifth point of control** should be to restrict access to restricted areas to a minimum with card-reader access controls, CCTV monitors, intrusion detection alarms, and forced-entry-resistant construction. Restricted access areas may include select agent storage, narcotics storage, and laboratories.

The more effective the perimeter barrier and screening are the less protection is needed within the site, such as between buildings, from patient and visitor parking and the building lobby, and from the site entrance to the other buildings on the site. In highly urban areas where the VA building may front on a city street with no stand-off or separation, the building and its occupants can only be protected from hazards of breaking and entering, vandalism, and even explosive or armed attack by hardening the building itself to resist, which may lead to undesirable solutions such as façades with minimum openings and a fortress-like appearance.

### 1.3.2 Crime Prevention Through Environmental Design (CPTED)

VA follows the principles of Crime Prevention Through Environmental Design (CPTED, see [www.cpted.net](http://www.cpted.net)). CPTED promotes the principles that proper design and effective use of the built environment can lead to a reduction in the fear and incidence of crime and acts of terrorism. CPTED should be used to evaluate VA site and building designs to create and enhance the concentric circles or layers of security protection.

### 1.3.3 Security Operation Requirements

Design decisions for the physical security of a life-safety protected facility should be based on the concentric levels of control and protection—both physical and operational—as described in section 1.3.1.

## 1.4 OBJECTIVES OF VA PHYSICAL SECURITY DESIGN

The primary objective of this manual is to provide the design team with the criteria and standards for the full range of strategies available for existing and new buildings to provide unobtrusive protection for VA facilities while safeguarding the veterans, staff, and visitors.

The physical security standards account for VA operations and policies and must be cost effective when implemented. An objective of this manual is to provide cost effective design criteria that will, when constructed and implemented, provide the appropriate level of physical security to VA's life-safety protected facilities. The *Physical Security Cost Manual* should be used by the design team in conjunction with this manual to determine and develop the most cost effective physical security for each life-safety protected facility.

## 1.5 BUDGETING AND PROGRAMMING FOR PHYSICAL SECURITY

When establishing a design and a budget for a life-safety protected project, the key point is that physical security is fully integrated into the program, rather than an added

requirement. When physical security is seen as an add-on to an otherwise complete project, the costs for implementation will be higher and the results less satisfactory. As such, it is essential to establish the physical security goals within the programming phase of the project, and to ensure that the budget is set to reflect the physical security requirements within the program goals.

## **1.6 RISK ASSESSMENT OF VA FACILITIES**

Risk assessments of existing VA facilities showed that the primary threats faced by the Department continue to be routine criminal activity and violence in the workplace; however, the proximity of some VA facilities to high vulnerability targets, the expanded threat caused by the Iraqi War and treatment of Iraqi War veterans, and the role of VA medical centers as backup to DOD and communities in the public health system, elevate VA's risks from both internal and external man-made threats.

It is not possible to eliminate all risk to a facility and every project will face resource limitations. Cost effective risk management is a requirement of every project. Prior to design development of a new life-safety protected facility or major alterations of an existing life-safety protected facility a risk assessment must be performed. Cost effective strategies must be implemented to make the facility capable of life-safety protected operation.

The first task is to identify the assets and people that need to be protected. Next, a threat assessment is performed to identify and define the threats and hazards that could cause harm to a building and its occupants. After threats and assets are identified, a vulnerability assessment is performed to identify weaknesses. Using the results of the asset, threat, and vulnerability assessment, risk can be determined.

Comprehensive protection against the full range of possible natural and man-made threats to VA facilities would be cost prohibitive, but an appropriate level of protection obtained through the use of these standards can provide for operation of life-safety protected facilities at a reasonable cost.

## **1.7 DOCUMENT DISTRIBUTION, USE, AND CONTROL**

This manual is unclassified.



## 1.8 ADMINISTRATION AND ENFORCEMENT

The provisions of these standards shall apply to all VA life-safety protected building construction projects for which design is begun on or after the effective date of this design manual.

These standards apply to new construction and all additions, alterations, and modernization. Any facility undergoing a renovation of 50 percent or greater is required to conform to the standards of a new life-safety protected facility. Existing facilities are required to meet physical security standards defined in this design manual as may be determined by VA based on funding considerations, prioritization, and other mission driven requirements.

These standards apply to the space being renovated in an existing building, and do not extend to other spaces in the same building except as may be directed by VA.

Any VA campus on which a new life-safety protected facility is to be constructed shall bring the entire site into conformance with these standards.

## 1.9 INTERPRETATIONS AND EXCEPTIONS

VA facilities that are not designated life-safety protected may be mission critical facilities, which are required to continue operation during a natural or man-made extreme event or a national emergency. Physical security design requirements for mission critical facilities are covered in a separate manual.

The requirements of these standards are directed at all building types currently owned and operated by VA. VA buildings leased through the General Services Administration (GSA) are exempt from these requirements and are covered in the Interagency Security Committee (ISC) "Security Standards for Leased Spaces" (September 29, 2004).

Buildings of such occupancy type and floor area that would allow Type V construction as defined in the International Building Code shall be exempt from the requirements of Chapter 7, Paragraphs 7.1 through 7.3.

Connecting corridor concourse and bridges shall be exempt from the stand-off distance requirements of Chapter 3 and the requirements of Chapters 6 and 7. Freestanding greenhouses shall be exempt from the requirements of Chapters 3, 6, and 7. Physical security requirements for temporary buildings shall be determined on a case by case basis by the security staff having cognizance.

The Project Manager has the role of approving deviations from the requirements and may waive requirements and give other instructions.

## **1.10 REVISIONS**

Revisions to the Physical Security Design Manual will be issued shortly after the initial publication due to VA office re-organization, numbering and nomenclature changes, and updates of other VA standards.

## Glossary

The following terms and definitions are related to the mitigation of man-made and natural hazards and do not include terms related to general facility design, construction, and operation.

**Cache:** A storage facility requiring a high level of security, often referring to pharmacy.

**Charge Weight:** The amount of explosives in a device in TNT equivalent.

**Clear Zone:** An area on either or both sides of a perimeter fence line that has been cleared of any materials that offer concealment to an intruder.

**Closed Circuit Television (CCTV):** A video system in which an analog or digital signal travels from a camera to video monitoring stations at a designated location.

**Continuity of Operations (COOP):** VA is required to have COOP capabilities that enable the Department to continue essential functions during a broad spectrum of emergencies. A COOP site is an alternate facility from which to continue essential agency functions should the primary facility be rendered unusable. A COOP site should provide a facility from which VA can continue to perform essential functions and operations during an emergency with reduced or mitigated disruptions to operations and where VA can achieve a timely and orderly recovery from an emergency and resume full service.

**Controlled Access Area or Controlled Area:** A room, office, building, or facility area which is clearly demarcated, access to which is monitored, limited, and controlled.

**Crash-rated:** Tested for resistance to a moving load impact at a given velocity and rated in terms of kinetic energy or “K” rating in tests for certification under Department of State programs.

**Crime Prevention Through Environmental Design (CPTED):** Design philosophy that effective use of the natural environment coupled with proper design of the built environment can lead to a reduction in the fear and incidence of crime.

**Critical Assets:** People and those physical assets required to sustain or support the facility's ability to operate on an emergency basis.

**Critical Infrastructure, Critical Space:** Building area(s) required to sustain or support the facility's ability to operate on an emergency basis.

**Detection and Screening System (DSS):** DSS are used for the pre-screening of persons, packages, and personal items for detection of contraband, such as, weapons, drugs, explosives, and other potential threatening items or materials prior to authorizing entry or delivery into the building. DSS includes X-ray machines, walk-through metal detectors (WTMD), hand-held metal detectors (HHMD), and desktop and hand-held trace/particle detectors (also referred to a "sniffers" and "itemizers").

**Duress Security Phone Intercom (DSPI):** DSPI systems are used to provide security intercommunications for access control, emergency assistance, and identification of personnel under duress requesting a security response.

**Explosives Detector:** Any device that detects components of explosive devices or explosive compounds by radiographic analysis, by analyzing chemical emissions, or by other methods.

**Extraordinary Incidents:** Events or conditions that exceed locally accepted design practice.

**Hardening:** Reinforcement of the building structure, components, and systems against impact of a blast, a ballistic assault, or ramming.

**High Crime Area:** Within a defined geographical location, the area with the highest arrest rates for violent crime and for such other crimes as drug sale, drug possession, prostitution, vandalism, and civil disturbances; with the highest reported crime volume of specific property crimes such as business and residential burglary, motor vehicle theft, and vandalism; the highest percentage of reported index crimes that are violent in nature; the highest overall index crime volume for the area; and the highest overall index crime rate for the geographic area.

**Hurricane Areas:** These requirements apply to VA medical and ambulatory care centers located within 16 kilometers (10 miles) of the Atlantic Ocean and 16 kilometers (10 miles) of the Gulf of Mexico. These requirements also apply to all inland VA medical and ambulatory care centers in Florida and those in Hawaii and Puerto Rico.

**ID Check:** Examination and verification of personal or vehicle identification visually or by other means.

**Intrusion Detection System (IDS):** A system combining mechanical or electric components to perform the functions of sensing, controlling, and announcing unauthorized entry into areas covered by the system. The IDS is intended to sound alarms or alert response personnel of an actual or attempted intrusion into an area.

**Itemizer:** A trace particle detection device capable of identifying both explosives and narcotics.

**Life-Safety Protected:** VA facilities which are required to protect the life safety of the patients, staff, and visitors in case of an emergency; although indispensable to the mission of VA, are not required to remain operational in a natural or man-made extreme event or a national emergency.

**Local Alarm:** An alarm that is annunciated in the immediate vicinity of the protected premises.

**Magnetometer or Metal Detector:** A walk-through portal or hand-held device designed to detect changes in magnetic fields used to identify hidden metal objects.

**Mantrap:** A double-door booth or chamber that allows a person to enter at one end, undergo an access identification routine inside the booth, and if the routine is satisfied, the lock on the booth door at other end is released.

**Mission Critical:** VA facility that is required to continue operation during a natural or man-made extreme event or a national emergency.

**Mitigation:** Actions taken to reduce the exposure to and impact of a hazard.

**Pedestrian Barrier:** A fence, wall, or other structure designed to delay pedestrians from entering the site without using the gates provided for pedestrians where *personnel screening* may be performed. The Pedestrian Barrier may or may not be coincident with the *vehicle barrier*.

**Perimeter Barrier:** A physical barrier used on the outside of a protected area to prevent, deter, or delay unauthorized entry.

**Personnel Screening:** Examining persons and their possessions for contraband such as weapons, explosives, and CBR agents using magnetometer, x-ray, search, or other device.

**Physical Access Control System (PACS):** A system combining mechanical or electrical components, such as card readers, keypads, biometrics, and electromagnetic locks and strikes, for the purpose of controlling access and monitoring building entrances, sensitive areas, mission critical asset areas, and alarm conditions.

**Physical Security:** That part of security concerned with physical measures designed to safeguard people, to prevent unauthorized access to equipment, facilities, material, and documents, and to safeguard against damage and loss.

**Police Operations Unit:** An area designed to facilitate the functions of the police and security services, which include the protection of patients, visitors, and employees; the protection of property; and the maintenance of law and order on property under the charge and control of the Department.

**Protected Area:** An area continuously protected by physical security safeguards and access controls.

**Protection Level:** The degree to which resources are used to defeat a threat.

**Restricted Area:** A controlled room, office, building, or facility area to which access is strictly and tightly controlled. Admittance to this area is limited to personnel assigned to the area and persons who have been specifically authorized access to the area.

**Risk:** The potential for a loss of or damage to an asset.

**Screening Vestibule:** Designated space or area located for access control between the public building entrance and the lobby which shall be of sufficient space and be provided with power, telecommunications, and data connections for installation of access control and screening equipment that may be used should the need arise.

**Secured Door Opening (SDO):** A door opening that requires security hardware such as electric strike, door contact, card reader, forced entry rating, or similar feature.

**Security Control Center (SCC):** A location for security personnel to monitor CCTV, alarms, and other security systems and devices. This may be in a separate space or, for small facilities, combined with a guard or reception desk at the entrance.

**Select Agent:** Select agents shall be as defined in Title 42, CFR, Part 73, including pathogens and toxins regulated by both DHHS and USDA and non-overlap select agents of DHHS.

**Stand-off:** Distance from event to target.



**Tactic:** Means of delivering a threat, such as a vehicle bomb.

**Terrorism:** An action that is intended to cause death or serious bodily harm to civilians or noncombatants, when the purpose of such an act, by its nature or context, is to intimidate a population or to compel a government or an international organization to do or to abstain from doing any act.

**Threat:** An indication of impending danger. The type of harm likely to be directed at a facility.

**Urban Area:** A geographic area with a population of more than 50,000 or a population density of at least 1,000 people per square mile (386 per square kilometer) and surrounding census blocks that have an overall density of at least 500 people per square mile (193 per square kilometer).

**Vehicle Arrest:** Means of stopping a vehicle from breaching a perimeter.

**Vehicle Barrier:** A passive or active physical barrier consisting of natural or man-made features designed to keep a vehicle carrying explosives at the required *stand-off* distance. This may or may not be coincident with a *pedestrian barrier*.

**Vehicle Inspection:** Examining vehicles for contraband such as explosives using physical search, K-9 searches, trace element sampling, x-ray, or other means.

**Vulnerability:** Susceptibility to physical injury or *threat*.

**X-ray Screening System:** A device or system that inspects the contents of a package or container for concealed explosives or contraband.



# Site Considerations

## 3.0 SCOPE

This chapter focuses on security design concepts, elements, and site planning strategies that influence the protection of the built and natural environments.

## 3.1 STAND-OFF DISTANCE

No vehicle shall be parked or be permitted to travel closer than 25 feet (7.6 m) to any life-safety protected VA facility.

### 3.1.1 Existing Facility – Stand-off Distance

Existing facilities shall meet the requirement of 3.1.

## 3.2 PERIMETER FENCES

Perimeter barriers shall consist of fences, walls, a combination of these, and gates as needed for access. The barrier shall be designed to resist forced or surreptitious entry using hand tools, such as by spreading bars of a fence to provide a passable opening. Fences shall have sufficient lateral support to resist overturning by manual force.

### 3.2.1 Location

The perimeter barrier shall be on or in close proximity to the perimeter of the property.

### 3.2.2 Height

The perimeter barrier shall have at least 6 feet (1.8 m) between potential horizontal footholds or designed with other anti-climb measures.

### 3.2.3 Material

Fences shall be metal and of heavy industrial-grade construction with bar spacing at a maximum of 5 inches (127 mm) on center. Chain link fences and gates shall not be used. Walls shall be reinforced masonry or concrete.

### 3.2.4 Gates

**3.2.4.1 Pedestrian gates:** Pedestrian and bicycle gates shall swing in the outward direction and shall be fully accessible to persons with disabilities in width and operation.

**3.2.4.2 Vehicular gates:** Vehicular security gates shall be sliding or cantilevered (no tracks) and only wide enough to accommodate one vehicle lane.

### 3.2.5 Existing Facility – Perimeter Fences

All sites with life-safety protected facilities shall meet the requirements of section 3.2.

## 3.3 VEHICLE AND PEDESTRIAN SCREENING

No additional physical security requirements.

## 3.4 VEHICLE BARRIERS

Passive vehicle barriers shall be selected on the appropriateness of the architecture of the facility and the specifics of the site and natural environment.

### 3.4.1 Active Barriers

No additional physical security requirements.

### 3.4.2 Stationary (Passive) Barriers

Natural or man-made stationary barriers may be used.

- Landscaping examples include berms, gullies, boulders, trees, and other terrain.
- Hardscaping examples include benches and planters.
- Structural examples include walls, bollards, and cables.

**3.4.2.1 Locations:** Adjacent to vulnerable perimeter fences, protection for site utility equipment, at building entrance, and other areas requiring additional protection from vehicles.

**3.4.2.2 Structure:** See Chapter 7, section 7.4 Anti-Ram Resistance, for structural requirements of passive barriers.

**3.4.2.3 Handicapped accessibility:** Passive barriers, such as bollards, when placed adjacent to or across a path of pedestrian travel, shall have 4 feet (1.2 m) clear space in between.

### 3.4.3 Existing Facility – Vehicle Barriers

All sites with life-safety protected facilities shall have stationary barriers as per section 3.4.2.

## 3.5 PARKING

### 3.5.1 Location

**3.5.1.1 Surface parking:** Passenger vehicles shall not be parked or permitted to travel closer than 25 feet (7.6 m) to a life-safety-protected VA facility.

**3.5.1.2 Parking structures:** No additional physical security requirements.

### 3.5.2 Access

**3.5.2.1 From vehicle entrance:** Access roads for all vehicles shall allow for separate driveways to the building entrance, service yard, or parking.

- Separate entrances to the site shall be provided for patients and visitors, employees and staff, emergency, and service and delivery vehicles.
- Access roads from entrances to parking for each vehicle type shall be separated, but may be connected for maintenance and emergency vehicles through gates controlled by access cards.
- Access roads shall be configured to prevent vehicles from attaining speeds in excess of 25 mph (40 kph).
- Avoid any straight-line vehicular approaches to a facility.

**3.5.2.2 From parking to facility:** See “Entrances” in this chapter and Chapter 4 for further information on building entrances.

### 3.5.3 User Type

In addition to the requirements above, the following are parking and access requirements for security according to specific users.

**3.5.3.1 Patients and visitors:** Parking and access for patients, visitors, and the persons transporting them to and from the VA facility shall be as convenient as possible to the main entrance, subject to the requirements above. Where vehicles are unscreened, make site provisions to accommodate a shuttle service for persons needing assistance. Parking and facility access shall comply with handicapped accessibility requirements.

**3.5.3.2 Emergency:** Emergency entrance shall be provided with a small parking area for emergency patients and space for ambulances. Ambulances shall be permitted to approach the building directly and not be subjected to the distance requirements of this Chapter.

**3.5.3.3 Childcare parents and staff:** All requirements for maintaining stand-off distance between vehicles and the building shall apply. Child drop-off and pick-up shall be visible from the office of the child care center and shall be monitored by CCTV. All vehicular areas, on site and adjacent off-site, including parking and access roads, shall be separated from playground areas by fences designed to prevent children from entering the vehicular areas and vehicles from entering the playground.

**3.5.3.4 Vendors:** The stand-off distances and screening requirements above apply. Vendors shall use the delivery vehicle entrance and service yard at the loading dock. Parking shall be provided for vendors in the service yard.

**3.5.3.5 Employees:** Where employees share access with patients and visitors, the entrance to the employee parking shall be controlled by a card-actuated gate. Employee parking areas shall be monitored by CCTV. Emergency alert systems, such as blue phones, shall be provided at the discretion of the VA Police.

### 3.5.4 Existing Facility – Parking

When separation of types of traffic is not feasible, card-controlled access gates and other traffic separation measures shall be used.

## 3.6 SITE LIGHTING

### 3.6.1 General Requirements

Provide minimum maintained illumination levels for pedestrian pathways, bicycle and vehicle routes, parking structures, parking lots, wayfinding, signage, pedestrian entrances, and building services which will provide safety and security for personnel, buildings, and site.

Lighting shall provide for safety and security without compromising the quality of the site, the environment (including neighboring properties), or the architectural character of the buildings.

**3.6.1.1 Aesthetic:** The site lighting shall provide desired illumination and enhancement of trees, landscaping, and buildings without providing dark shadowy areas compromising safety and security.

**3.6.1.2 CCTV:** Site lighting shall provide CCTV and other surveillance support with illumination levels and color that assists in proper identification. Lighting shall be coordinated with CCTV cameras to enhance surveillance and prevent interference. Avoid “blinding” CCTV cameras in the placement and selection of fixtures and their “cutoff” angles.

**3.6.1.3 Luminance levels:** Illumination levels shall be in compliance with the Illumination Engineering Society of North America (IESNA), VA Design Guides, and local and state governing agencies.

**3.6.1.4 Signage and wayfinding:** Shall be enhanced by site lighting, including providing improved security by assisting pedestrians and vehicles to locate their destinations expeditiously. Refer to *VA Signage Design Guide* dated 2/2005.

**3.6.1.5 Environmental:** Avoid light pollution and spill into neighboring properties by selection of fixtures’ cutoff angles to minimize their nuisance visibility from adjacent areas on and off VA property.

## 3.6.2 Lighting Locations

Comply with all requirements for site lighting as may be set forth in VA publications. In addition, the following areas require additional attention in lighting design to support security and safety needs.

**3.6.2.1 Site entrances:** Lighting shall be provided at all site entrances at illumination levels that assist in after-dark performance of security duties:

- To assist security personnel with visual personal identification into vehicles to see the driver’s compartment and view ID.
- To provide illumination of wayfinding and other signage.

**3.6.2.2 Perimeter fence:** Lighting sufficient to support perimeter CCTV surveillance shall be provided without spillage onto neighboring properties or rights-of-way.

- Where a perimeter road has been provided for patrols or other functions, the lighting may be combined with roadway lighting.

**3.6.2.3 Building entrances and exits:** Lighting at building entrances shall support CCTV surveillance and ID functions while providing illumination of surfaces and features for safety.

**3.6.2.4 Parking areas:** All parking areas covered and open shall be lighted in support of CCTV and other surveillance without spill into adjacent areas on or off site.

**3.6.2.5 Pathways:** Pedestrian and bicycle pathways and walks, including bike racks, gates, and other features shall be illuminated in support of CCTV and other surveillance while providing for safety without spill onto adjacent areas on and off site.

**3.6.2.6 Signage:** All signage shall be adequately illuminated to provide safe wayfinding and identification. Wayfinding maps and texts shall be individually illuminated.

**3.6.2.7 Enclosures:** Liquid oxygen tanks and other enclosures shall be illuminated in support of CCTV and visual surveillance without spillage into other areas on or off site.

**3.6.2.8 Trash:** Collection areas shall be illuminated in service yards as a part of the yard illumination. Individual trash bins may not require illumination.

**3.6.2.9 Loading docks and associated yards:** Loading areas shall be fully illuminated for operations and in support of CCTV and other surveillance and Identification needs.

### 3.6.3 Existing Facility – Site Lighting

Existing facilities shall meet the requirements of section 3.6.



# Building Entrances and Exits

## 4.0 SCOPE

This section provides requirements for public entrances, entrance lobbies, patient drop-offs, and staff entrances. Reduce the number of public entrances to the minimum number required. Entrance requirements for specific functional areas, such as loading dock and other service entrances for life-safety protected facilities, are covered in Chapter 5. Specific requirements for security devices and their locations can be found in Appendix A, Security Door Openings, and Appendix B, Security System Application Matrix.

## 4.1 PUBLIC ENTRANCES AND LOBBIES

Public access to the facility should be restricted to a single or limited number of entrances.

### 4.1.1 Entrances

**4.1.1.1 Public public entrances:** The public entrance is to the main lobby of the facility.

**4.1.1.2 Staff entrances:** Staff entrances shall be located independently of main entrance lobbies and be convenient to staff parking.

### 4.1.2 Screening Vestibules

The screening vestibule shall have sufficient space and be provided with power, telecommunications, and data connections for installation of access control and screening equipment that may be used should the need arise. Prevent access from drop-off to lobby in a straight line of travel and provide sufficient size to accommodate several people with mobility aids.

### 4.1.3 Lobbies

**4.1.3.1 Location:** Vehicles may not approach within 25 feet (7.6m) of the entrance.

**4.1.3.2 Doors:** Entrance doors to the lobby shall be visible to or monitored by security personnel.

**4.1.3.3 Access within the facility:** Access from the lobby to elevators, stairways, and corridors shall be controlled through the use of electronic access control or mechanical locking devices, limiting access to specific floors and areas that house functions requiring restricted access.

- Install elevator call buttons requiring use of key cards or other electronic access control when they are located in restricted areas.

### 4.1.4 Access for Emergency Responders

The Fire Command Center (FCC) and secure house key box for emergency responders shall be located near an entrance door at a location approved by the Project Manager. The door associated with the FCC shall be controlled and monitored by CCTV.

### 4.1.5 Planning, Construction Details, and Materials

**4.1.5.1 Structure:** The entrance itself shall be constructed to fail in a way that subjects persons inside or nearby to as little hazard as possible. (See Chapter 6, Building Envelope and Chapter 7, Structural System.)

- Protection of entrances and lobbies from vehicle ramming must be accomplished outside and in front of the entrance. (See Chapter 3, section 3.4 Vehicle Barriers.)
- If a covered drop-off area is provided, its supporting structure shall be independent of the main building and protected from intentional and unintentional damage by vehicles.
- Separate the public lobby from adjacent areas with partitions that extend to the underside of the floor above.

**4.1.5.2 Façade:** Glazing in the lobby area shall be laminated glass.

**4.1.5.3 Doors and hardware:** Exterior doors shall be in size, operation, and other characteristics in compliance with applicable regulatory requirements. If doors are lockable, they shall comply with emergency egress requirements. Refer to Program Guide PG-18-14, *Room Finishes, Door and Hardware Schedule*, and Appendix A, Security Door Openings, for additional requirements.

- Glass for entrance doors shall be laminated.
- Public doors shall be capable of being remotely locked and unlocked from the reception desk in the main lobby.
- Staff entrance doors may be manually or power operated and may be swinging doors, horizontal sliding doors (power operated only), or revolving doors.
- Secondary public entrance doors shall prevent unauthorized access.
- Staff entrance door hardware shall include either mechanical or electronic locks.
- Means of egress doors that do not also function as entrances shall be provided with delayed action and alarmed emergency egress hardware.

**4.1.5.4 Receptacles:** Letter boxes and receptacles for trash and smoking paraphernalia shall not be located within 5 feet (1524 mm) of load-bearing elements. Those within 25 feet (7.6 m) of the building shall be designed to prevent depositing of explosive charges or to contain explosions with a charge weight (defined in the *Physical Security Design Standards Data Definitions*) as directed by the Project Manager and coordinated with the structural engineer.

## 4.1.6 Security Monitoring

All public entrances require security monitoring. At public entrances provide the means to restrict public access to those areas where screening is available when screening is required.

**4.1.6.1 Security guard stations:** No additional physical security requirements.

**4.1.6.2 Screening devices:** At all public entrances, provide the required connections for temporary installation of metal detectors and package screening equipment and sufficient space for their installation without restricting emergency egress.

- Locate screening equipment in a manner that will prevent passage into the building or facility without passing through the devices.
- When screening devices are not permanently installed, provide secure storage in close proximity to their installation location.

**4.1.6.3 Security devices:** CCTV cameras shall be provided to monitor activities in the lobbies of new and existing life-safety protected facilities and shall be located to provide views of approaching pedestrian and vehicular traffic, drop-off areas, building entrances, and departing pedestrian and vehicular traffic.

### 4.1.7 Existing Facility – Entrances and Lobbies

**4.1.7.1 Covered drop-off:** Protect columns with anti-ram barriers such as bollards and from explosive devices by installation of barriers that prevent detonation within 18 inches (457 mm).

**4.1.7.2 Vestibules:** Where space permits, provide an entrance vestibule of sufficient size to accommodate several people with mobility aids. Where possible arrange entrance vestibule to prevent access from drop-off to lobby in a straight line of travel.

**4.1.7.3 Glazing:** Glazing in the lobby area shall be laminated glass or fitted with anti-fragmentation film.

**4.1.7.4 Access within the facility:** Modify existing elevator call buttons to require electronic access control to register calls when elevators open directly into restricted areas.

## 4.2 DROP-OFFS

Drop-offs shall be located at primary building entrances or other locations that will provide convenient access to services without hindering the flow of traffic. Patient drop-off areas shall not be located near staff-only entrances.

### 4.2.1 Vehicular Access

Drop-offs and waiting areas for unscreened vehicles, including public transportation vehicles, shall be separated from the main building structure by at least 25 feet (7.6 m).

### 4.2.2 Parking

Parking shall not be permitted in patient drop-off areas.

### 4.2.3 Existing Facility – Patient Drop-offs

Patient drop-offs for existing facilities shall meet the requirements of 4.2.1 and 4.2.2.

## 4.3 BUILDING EXITS AND LIFE SAFETY CONSIDERATIONS

Means of egress shall not be obstructed by installation of security devices such as guard stations, screening equipment, or other security devices.

Delayed egress and alarmed exits shall comply with applicable codes and regulations.

### 4.3.1 Site Requirements

Provide an unobstructed and adequately lighted path from each means of egress to a safe location outside the building.

- Where the means of egress is accessible to persons with disabilities, provide an accessible route to a safe location outside the building.
- Where means of egress lead to loading docks or other service areas, direct users away from hazardous and pathological waste storage, mailrooms, and other areas that may be the source of injury or contamination.
- Plan and locate egress paths so that they are not obstructed by with anti-ramming barriers or other similar devices.

### 4.3.2 Planning, Construction Details, and Materials

Construction of building exits shall be consistent with the requirements for adjacent building envelope elements.

- Where laminated glass is required in nearby window openings, glazing for exit doors shall also be laminated.
- Where adjacent portions of the building require blast resistant construction, construct the means of egress with a similar level of protection.
- Means of egress doors shall be of construction that makes unauthorized entry from the exterior difficult. Provide hardware that minimizes the opportunity for unauthorized entry by using components such as continuous hinges and astragals.

### 4.3.3 Security Monitoring

Where means of egress do not also function as access points for the building, provide card reader for authorized users and delayed action, alarmed egress hardware to indicate unauthorized use.

- Provide CCTV cameras at locations with alarmed exits, at loading docks, and other areas subject to pilferage.
- Install door status monitors at doors intended to be used only for emergency egress.

### 4.3.4 Existing Facility – Building Exits and Life Safety Considerations

Existing facilities shall meet the requirements of section 4.3.



# Functional Areas

## 5.0 SCOPE

Refer to the Physical Security Design Manual for Mission Critical Facilities for design for the following functional areas that require enhanced protection in Life-Safety Protected buildings.

- 5.1 Agent Cashier
- 5.2 Cache
- 5.3 Childcare/Development Center
- 5.4 Computer Room
- 5.5 COOP Site
- 5.6 Emergency Department
- 5.7 Emergency and/or Stand-by Generator Room
- 5.8 Energy Center/Boiler Plant
- 5.9 Loading Dock and Service Entrances
- 5.10 Mailroom
- 5.11 Pharmacy
- 5.12 Police Operations Room and Holding Room
- 5.13 Records Storage and Archives
- 5.14 Research Laboratory and Vivarium
- 5.15 Security Control Center





# Building Envelope

## 6.0 SCOPE

This section provides requirements for exterior walls other than load bearing walls; glazed façade fenestration and glazed atria; for roof structures, including skylights; and air intakes and exhausts servicing mission critical equipment but does not pertain to stacks and wall openings for non-critical equipment. These requirements are in addition to the requirements for conventional façade design, including the provisions for hurricane, earthquake, and any other extreme loading condition required by code. The magnitude of GP1, GP2, W1, and W2 are defined in the *Physical Security Design Standards Data Definitions* that shall be stored separate from this document.

Connecting corridor concourse and bridges and freestanding greenhouses shall be exempt from the requirements of Chapters 6 and 7. Physical security requirements for temporary buildings shall be determined on a case by case basis by the security staff having cognizance.

## 6.1 WALLS

### 6.1.1 Non-load Bearing Walls

Walls shall be designed to withstand the design level vehicle threat (W1) located at the stand-off distance to a maximum peak pressure and corresponding impulse of GP1 while sustaining a deformation no greater than  $L/30$ .

**6.1.1.2 Supporting structure:** Walls shall span from slab to slab and shall not be attached directly to gravity load bearing elements (such as columns and shear walls) unless an advanced analysis of the load bearing element demonstrates it can accept the maximum forces of the members framing into it without compromising its capacity.

**6.1.1.3 Loads:** Walls shall be able to accept the tributary loads transferred from glazed fenestration in addition to the design level pressures applied directly to their surface.

### 6.1.2 Existing Facility – Walls

No additional physical security requirements.

## 6.2 FENESTRATION

### 6.2.1 Façade Fenestration

All façade fenestration shall be designed to crack but fragments shall enter the occupied space and land on the floor no further than 10 feet (3 m) from the façade in response to the calculated peak pressures and impulses resulting from the design level threat (W1) located at the stand-off distance, but no greater than GP1.

**6.2.1.1 Glass:** Fenestration shall be constructed using debris mitigating materials such as laminated glass.

**6.2.1.2 Glazing:** The glass shall be restrained within the mullions with a sufficient bite or structural silicone adhesive to allow it to develop its post-damage capacity.

**6.2.1.3 Mullions:** The mullions shall be designed to accept the design level pressures while sustaining deformations no greater than  $L/30$ .

**6.2.1.4 Curtainwall:** Curtainwall framing members shall span from slab to slab and shall not be attached directly to gravity load bearing elements (such as columns and shear walls) unless an advanced analysis of the load bearing element demonstrates it can accept the maximum forces of the members framing into it without compromising its load bearing capacity.

### 6.2.2 Existing Facility – Fenestration

No additional physical security requirements.

## 6.3 ATRIA

### 6.3.1 Atria

Vertical glass surfaces shall be designed to crack but fragments shall enter the occupied space and land on the floor no further than 10 feet (3 m) from the façade in response to the calculated peak pressures and impulses resulting from the design level vehicle threat (W1) located at the stand-off distance, but no greater than GP1.

**6.3.1.1 Skylights:** Skylights shall be designed to crack but remain in its frame in response to the calculated peak pressures and impulses resulting from the design level vehicle threat (W1) located at the stand-off distance, but no greater than GP1.

**6.3.1.2 Glass:** Atria shall be constructed using debris mitigating materials such as laminated glass.

**6.3.1.3 Glazing:** The glass shall be restrained within the mullions with a sufficient bite or structural silicone adhesive to allow it to develop its post-damage capacity.

**6.3.1.4 Mullions:** The mullions shall be designed to accept the design level pressures while sustaining deformations no greater than L/30.

**6.3.1.5 Framing:** Atria framing members shall be designed to continue carrying gravity loads while sustaining maximum allowable deformations.

### 6.3.2 Existing Facility – Atria

No additional physical security requirements.

## 6.4 ROOFS

### 6.4.1 Roof Structure

Roof structure shall be designed to withstand the design level vehicle threat (W1) located at the stand-off distance, but no greater than GP1, while sustaining a deformation no greater than L/30. The blast loading shall take into account the presence of parapets, the diffusion of blast waves, and the spatial extent of the roof surface.

### 6.4.2 Skylights

Skylights shall be designed to crack but remain in its frame in response to the calculated peak pressures and impulses resulting from the design level vehicle threat (W1) located at the stand-off distance, but no greater than GP1.

**6.4.2.1 Glazing:** Skylight glass shall be restrained within the mullions with a sufficient bite or structural silicone adhesive to allow it to develop its post-damage capacity.

**6.4.2.2 Mullions:** The mullions shall be designed to accept the design level pressures while sustaining deformations no greater than  $L/30$ .

### 6.4.3 Penthouses Enclosing Mission Critical Equipment

Penthouse façade shall be designed to withstand the effects of hurricane wind loads and debris impact. Penthouse enclosures shall also be designed to resist the design level vehicle threat (W1) located at the stand-off distance, but no greater than GP1, to be consistent with the hardened intakes and exhausts, as described in section 6.5.1.

### 6.4.4 Existing Facility – Roofs

No additional physical security requirements.

## 6.5 AIR INTAKES AND EXHAUSTS SERVICING CRITICAL EQUIPMENT

### 6.5.1 Intakes and Exhausts

Air intakes and exhausts shall be designed to minimize debris in response to the design level vehicle threat (W1) located at the stand-off distance up to a maximum peak pressure and corresponding impulse of GP1. Louvered openings shall be designed and detailed to restrain debris.

**6.5.1.1 Entrances and lobbies:** Maintain positive pressure in lobbies and entrance areas.

- Locate all outdoor air intakes a minimum of 100 feet (31 m) from areas where vehicles may be stopped with their engines running.
- Locate all outdoor air intakes a minimum of 30 feet (9 meters) above finish grade or on roof away from the roof line.

**6.5.1.2 Hurricane areas:** Louvers in areas prone to hurricanes or wind-debris hazards shall be certified by the manufacturer to meet the following Florida Building Code tests: Uniform Static Air Pressure Test, Cyclic Wind Pressure Test, Large Missile Impact Test, and Wind Driven Rain Resistance Test.

### 6.5.2 Existing Facility – Air Intakes and Exhausts Servicing Critical Equipment

Air intakes and exhausts shall meet the requirements of section 6.5.1.

## 6.6 CALCULATION METHODS

All blast design and analysis, whether for new or existing construction, shall be performed in accordance with accepted methods of structural dynamics.

### 6.6.1 Design and Detailing

The performance of façade in response to blast loading is highly dynamic and often inelastic. Design and detailing of protected façade shall therefore be based on analytical methods that accurately represent the loads and response. Explosive test data, developed by an experienced testing facility approved by the U.S. Government (USG), may be used to supplement the analytical methods where a direct analytical representation is not feasible.

### 6.6.2 Blast Loads

Blast loads shall typically be developed using the semi-empirical relations of TM5-855 (CONWEP).

### 6.6.3 Dynamic Response

Dynamic structural response analyses shall be performed using either empirical data developed by an approved U.S. Government testing laboratory, simplified Single-Degree-of-Freedom (SDOF) analytical methods or advanced Finite Element Methods (FEM). Where simplified SDOF methods are used, the performance criteria shall be in accordance with established standards of practice developed by the USG. Where advanced FEM methods are used, the performance shall be demonstrated through interpretation of the calculated results.



# Structural System

## 7.0 SCOPE

This chapter provides requirements for blast resistant structures and includes requirements for the prevention of progressive collapse and the local hardening of critical columns.

All building components requiring blast resistance must be designed using established methods and approaches for determining dynamic loads, structural detailing, and dynamic structural response. Alternative analysis and mitigation methods are permitted, provided that the performance level is attained.

While structural hardening makes the structure resistant to a specific threat, design to resist progressive collapse increases the robustness of the structure to an undefined event. This threat independent approach provides redundant load paths, ductility, and continuity. Designers may apply static and/or dynamic methods of analysis to demonstrate compliance with this requirement.

These requirements are in addition to the requirements for conventional structural design, including the provisions for hurricane, earthquake, and any other extreme loading condition required by code. The magnitude of GP1, GP2, W0, and W1 are defined in the *Physical Security Design Standards Data Definitions* that shall be stored separate from this document.

The minimum physical requirements for the construction of active and passive vehicle barriers are also included in this chapter.

Connecting corridor concourse and bridges and freestanding greenhouses shall be exempt from the requirements of Chapters 6 and 7. Physical security requirements for temporary buildings shall be determined on a case by case basis by the security staff having cognizance.

## 7.1 BLAST RESISTANCE

Structures shall be constructed to withstand the actual pressures and corresponding impulses produced by the design level vehicle threat (W1) located at the stand-off distance and the design level satchel threat (W0) that may be delivered to loading docks, mailrooms, lobbies, and below grade parking garages prior to screening. The design shall provide a level of protection for which progressive collapse will not occur; the building damage will be economically repairable and the space in and around damaged area can be used and will be fully functional after cleanup and repairs.

### 7.1.1 Priority for Protection

The priority for blast resistance upgrades shall be given to critical elements that are essential to mitigating progressive collapse. Designs of secondary structural elements, primary non-structural elements, and secondary non-structural elements shall minimize injury and damage. The priority depends on the relative importance of structural or non-structural elements in the following order.

**7.1.1.1 Primary structure:** Primary structural elements are the essential parts of the building's resistance to catastrophic failure, including columns, girders, roof beams, and the main lateral resistance system.

**7.1.1.2 Secondary structure:** Secondary structural elements are all other load bearing members, such as floor beams and slabs.

**7.1.1.3 Primary non-structural:** Primary non-structural elements and their attachments that are essential for life safety systems or elements that can cause substantial injury if failure occurs, including ceilings or heavy suspended mechanical units.

**7.1.1.4 Secondary non-structural:** Secondary non-structural elements are all elements not covered in primary non-structural elements, such as partitions, furniture, and light fixtures.

### 7.1.2 Existing Facility – Blast Resistance

No additional physical security requirements.

## 7.2 PROGRESSIVE COLLAPSE

Structures shall be designed to minimize the potential for progressive collapse using the Tie Force Method as defined in U.S. Government (USG) guidelines, specifically, *Design*



*of Building To Resist Progressive Collapse*, UFC 4-023-03. Structures shall develop peripheral, internal, and vertical tie forces by providing continuous reinforcement and ductile detailing. Consideration shall be given to ductile moment resisting frame lateral systems at the exterior of the building. All exterior columns shall be designed to prevent progressive collapse.

## 7.2.1 Existing Facility – Progressive Collapse

No additional physical security requirements.

## 7.3 COLUMN PROTECTION

Columns exposed to blast loading shall be hardened or isolated to resist the effects of the design level vehicle threat (W1) located at the stand-off distance and the design level satchel threat (W0) that may be delivered to loading docks, mailrooms, lobbies, and below grade parking prior to screening. The design shall provide a level of protection for which progressive collapse will not occur; the building damage will be economically repairable and the space in and around damaged area can be used and will be fully functional after cleanup and repairs.

### 7.3.1 Existing Facility – Column Protection

No additional physical security requirements.

## 7.4 ANTI-RAM RESISTANCE

### 7.4.1 Vehicle Barriers

Both active and passive barriers shall provide an anti-ram resistance capable of stopping a 4,000 pound (1,800 Kg) vehicle at the speed to be interdicted. The speed determining the appropriate kinetic energy resistance shall be 30 miles per hour (48 Km/hr). (See also Chapter 3, Section 3.4 Vehicle Barriers.)

**7.4.1.1 Testing:** Performance of anti-ram element shall be demonstrated by means of impact testing or detailed finite element analysis of the vehicle impact.

**7.4.1.2 Active barriers:** Active barriers shall be hydraulic wedges, bollards, beams, drop arms, or sliding gates.

**7.4.1.3 Passive barriers:** Passive barriers shall be walls, stationary bollards, cables, or combination of landscape and hardscape that achieves the required anti-ram resistance.

## 7.4.2 Existing Facility – Anti-ram Resistance

The requirements of section 7.4.1 above shall apply.

## 7.5 CALCULATION METHODS

All blast design and analysis, whether for new or existing construction, shall be performed in accordance with accepted methods of structural dynamics.

### 7.5.1 Design and Detailing

The performance of structures in response to blast loading is highly dynamic and often inelastic. Design and detailing of these structures shall therefore be based on analytical methods that accurately represent the loads and response. Explosive test data, developed by an experienced testing facility approved by the USG, may be used to supplement the analytical methods where a direct analytical representation is not feasible.

### 7.5.2 Blast Loading

Blast loads shall typically be developed using the semi-empirical relations of TM5-855 (CONWEP); however, where near contact detonations are considered, Computational Fluid Dynamics (CFD) methods may be required.

### 7.5.3 Dynamic Response

Dynamic structural response analyses shall be performed using either empirical data developed by an approved USG testing laboratory, simplified Single-Degree-of-Freedom (SDOF) analytical methods, or advanced Finite Element Methods (FEM). Where simplified SDOF methods are used, the performance criteria shall be in accordance with established standards of practice developed by the USG. Where advanced FEM methods are used, the performance shall be demonstrated through interpretation of the calculated results.

# Utilities and Building Services

## 8.0 SCOPE

This chapter describes criteria for site utility entrances (services), on-site utility distribution, and building services. Utility systems included but are not limited to, potable and industrial water, fire protection water, sanitary sewer, fuels, steam, chilled water, electrical power, and telecommunications. Site utility entrances may include utility-owned service and metering equipment. Unless otherwise directed, the utility services shall be designed in accordance with the VA Design Manuals including the Electrical, HVAC, Plumbing, Fire Protection, Outside Steam Distribution, and Sanitary Design Manuals.

## 8.1 UTILITY ENTRANCES

### 8.1.1 Mechanical

No additional physical security requirements.

### 8.1.2 Electrical

No additional physical security requirements.

### 8.1.3 Telecommunications

No additional physical security requirements.

### 8.1.4 Existing Facility – Utility Entrances

No additional physical security requirements.

## 8.2 SITE DISTRIBUTION

### 8.2.1 Mechanical

No additional physical security requirements.

### 8.2.2 Electrical

No additional physical security requirements.

### 8.2.3 Telecommunications

No additional physical security requirements.

### 8.2.4 Existing Facility – Site Distribution

No additional physical security requirements.

## 8.3 ENERGY CENTER

### 8.3.1 Concepts

No additional physical security requirements.

### 8.3.2 Storage Considerations

No additional physical security requirements.

### 8.3.3 Existing Facility – Energy Center

No additional physical security requirements.

## 8.4 WATER AND FUEL STORAGE

### 8.4.1 Storage Volume Criteria

No additional physical security requirements.

### 8.4.2 Water Treatment

No additional physical security requirements.

### 8.4.3 Protection of Equipment

No additional physical security requirements.

### 8.4.4 Existing Facility – Water and Fuel Storage

No additional physical security requirements.

# Building Systems

## 9.0 SCOPE

This chapter describes criteria for building mechanical building systems (fuels, steam, and chilled water), building plumbing systems (potable water, fire protection water, sanitary sewer, medical and laboratory air and vacuum systems), building water storage systems (potable and industrial water storage tanks, water wells, pumps, and water purification systems), building electrical systems (electrical distribution equipment, and electrical rooms and closets), stand-by power systems (generators, paralleling equipment, automatic transfer switches, and fuel storage), building uninterruptible power supply systems, and building telecommunications systems (DEMARC room, telephone equipment room, main computer room, telephone system, telecommunications distribution rooms, WLAN system, portable radio system, satellite radiotelephone system, public address system, distributed antenna system, and VSAT data terminal system). Unless otherwise directed, the utility services shall be designed in accordance with the VA Design Manuals including the Electrical, HVAC, Plumbing, Fire Protection, and Site Utilities Design Manuals.

### 9.0.1 Modularity

No additional physical security requirements.

### 9.0.2 Security Considerations

No additional physical security requirements.

## 9.1 HVAC SYSTEMS

### 9.1.1 Requirements

**9.1.1.1 Equipment location:** Locate major mechanical equipment above the ground floor in an area not subject to flooding.

**9.1.1.2 Emergency connections:** No additional physical security requirements.

**9.1.1.3 Security Control Center (SCC):** No additional physical security requirements.

**9.1.1.4 Entrances and lobbies:** Maintain positive pressure in lobbies and entrance areas.

### 9.1.2 Intakes and Exhausts

**9.1.2.1 Outdoor air intakes:** All air intakes shall be located so that they are protected from external sources of contamination. Locate the intakes away from publicly accessible areas, minimize obstructions near the intakes that might conceal a device, and use intrusion alarm sensors to monitor the intake areas.

- Locate all outdoor air intakes a minimum of 100 feet (31 m) from areas where vehicles may be stopped with their engines running.
- Locate all outdoor air intakes a minimum of 30 feet (9 meters) above finish grade or on roof away from the roof line.

**9.1.2.2 Air intakes and exhausts:** Design to minimize the blast over pressure admitted into critical spaces and to deny a direct line of sight from a vehicle threat located at the stand-off distance to the critical infrastructure within. Refer to Chapter 6.

**9.1.2.3 Hurricane areas:** Louvers in areas prone to hurricanes or wind-debris hazards shall be certified by the manufacturer to meet the following Florida Building Code tests: Uniform Static Air Pressure Test, Cyclic Wind Pressure Test, Large Missile Impact Test, and Wind Driven Rain Resistance Test.

### 9.1.3 Existing Facility – HVAC Systems

No additional physical security requirements.

## 9.2 ELECTRICAL SYSTEMS

### 9.2.1 Stand-by Power Systems

No additional physical security requirements.

### 9.2.2 Uninterruptible Power Systems

Provide UPS equipment for any telecommunications equipment that is required for proper operation of calls to “911.”

### 9.2.3 Existing Facility – Electrical Systems

Existing facilities shall meet the requirements of 9.2.2.

## 9.3 TELECOMMUNICATIONS SYSTEMS

### 9.3.1 Demarcation Room (DEMARC)

No additional physical security requirements.

### 9.3.2 Telephone Equipment Room

No additional physical security requirements.

### 9.3.3 Main Computer Room

No additional physical security requirements.

### 9.3.4 Telecommunications Distribution Rooms

No additional physical security requirements.

### 9.3.5 WLAN System

No additional physical security requirements.

### 9.3.6 Portable Radio System

No additional physical security requirements.

### 9.3.7 Satellite Radiotelephone System

No additional physical security requirements.

### **9.3.8 Public Address System**

No additional physical security requirements.

### **9.3.9 Distributed Antenna System**

No additional physical security requirements.

### **9.3.10 VSAT Satellite Data Terminal**

No additional physical security requirements.

### **9.3.11 Existing Facility – Telecommunication Systems**

No additional physical security requirements.

## **9.4 PLUMBING SYSTEMS**

### **9.4.1 Medical Air and Oxygen Systems**

No additional physical security requirements.

### **9.4.2 Existing Facility – Plumbing Systems**

No additional physical security requirements.

## **9.5 FIRE PROTECTION SYSTEMS**

### **9.5.1 Fire Department Hose Connections**

Fire department hose connections located on the exterior of a building shall be secured in suitable enclosure that limits access to authorized personnel. Coordinate with the serving fire department.

### **9.5.2 Existing Facility – Fire Protection Systems**

Shall meet the requirements of 9.5.1.



# Security Systems

## 10.0 SCOPE

This chapter addresses physical security standards associated with the selection, application, and performance of electronic security systems (ESS). The ESS include the Closed Circuit Television (CCTV) monitoring and surveillance system; Intrusion Detection System (IDS); Physical Access Control System (PACS); Duress, Security Phones, and Intercom System (DSPI), commonly referred to as intercommunications system; and the optional use of Detection and Screening System (DSS). The integration and monitoring of the ESS, system operation, and space requirements associated with the ESS subsystems are discussed in the section on the Security Control Center (SCC), which also describes the security console operations and systems management criteria.

The ESS subsystems shall be designed and engineered by a qualified security consultant with a minimum of five years of relevant experience and who maintains current certification such as Certified Protection Professional (CPP) or Physical Security Professional (PSP) from the American Society for Industrial Security (ASIS).

## 10.1 CCTV MONITORING AND SURVEILLANCE (CCTV)

This section addresses physical security standards for the two basic uses of a video surveillance, or CCTV, system: access control and general surveillance. This section describes the selection, application, and performance of the CCTV system, which includes cameras, monitors, controlling and recording equipment, and centralized management and operations of the system.

### 10.1.1 System Uses, Compatibility, and Integration

Refer to Appendix A, Security Door Openings Matrix, and Appendix B, Security System Application Matrix, for CCTV system component locations.

**10.1.1.1 System uses:** CCTV system shall be used to monitor building entrances, restricted areas, mission critical asset areas, and alarm conditions. CCTV system shall be used for surveillance and observations of defined exterior areas, such as site and roadway access points, parking lots, and building perimeter, and interior areas from a centralized security control center (SCC).

**10.1.1.2 System compatibility:** All components of the CCTV system shall be fully compatible and shall not require the addition of interface equipment or software upgrades to ensure a fully operational system.

**10.1.1.3 System integration:** The CCTV system shall be able to be fully integrated with other security subsystems.

### 10.1.2 Networked versus Stand-alone CCTV System

CCTV system shall be designed and engineered as either a networked or stand-alone system.

**10.1.2.1 Networked CCTV system:** A networked CCTV system shall be utilized when multiple cameras, monitors, controllers, and recording devices are configured and makeup what is defined as a whole CCTV system. All components of the system shall be monitored and controlled at a single point, the SCC, using either a matrix switcher or a desktop computer.

**10.1.2.2 Stand-alone CCTV system:** A stand-alone CCTV system may be used for a single application and designated location use only and may compliment the physical access control system (PACS) for a specific area. Fixed camera(s) shall be positioned in a manner to allow viewing of specific entry control point(s) through the use of a dedicated CCTV system monitor located in a common viewing area.

### 10.1.3 Cameras

The design, installation, and use of CCTV cameras shall support the visual identification and surveillance of persons, vehicles, assets, incidents, and defined locations.

**10.1.3.1 General requirements:** All cameras shall meet the following requirements.

- Cameras shall be charge coupled device (CCD) cameras and conform to National Television System Committee (NTSC) formatting criteria.
- Cameras shall be color and programmable to digitally switch from color to black and white at dusk and vise versa at dawn.

- Cameras shall be rated for continuous operation.
- Each camera function and activity shall be addressed within the system by a unique twenty (20) character user defined name. The use of codes or mnemonics identifying the CCTV action shall not be accepted.
- Cameras shall have built-in video motion detection that automatically monitors and processes activity information from each camera based upon how the surveillance field-of-view is programmed.
- When the camera is used as part of a CCTV system computer network, a video encoder shall be used to convert the signal from the NTSC criteria to Moving Picture Experts Group (MPEG) format.
- All cameras shall be home run to a monitoring and recording device via controlling video equipment such as a matrix switcher or network server that is monitored from a designated SCC location. The use of wireless cameras may also be considered. (See section 10.1.3.3)

**10.1.3.2 Fixed versus pan/tilt/zoom (P/T/Z) cameras:** CCTV cameras may be either fixed or pan/tilt/zoom (P/T/Z).

- Fixed cameras shall be the primary means of surveillance to monitor designated access control and monitoring points.
- P/T/Z cameras shall compliment the use of fixed cameras when large and multiple areas of surveillance are required and using video motion detection provides additional surveillance advantages.
- P/T/Z cameras shall be used and deployed for all site perimeter and exterior building areas.
- Fixed cameras shall be used to monitor interior building areas; P/T/Z cameras may be used to provide supplemental surveillance coverage of building interiors where necessary.

**10.1.3.3 Hardwired versus wireless cameras:** CCTV cameras classified as hardwired directly connect to a monitoring device using video signal imaging cable. A wireless CCTV camera application is directly connected via a remote receiver that requires constant line-of-sight communications with the camera and the monitoring device.

- Hardwired or IP cameras shall be the preferred method of installation.
- Hardwired cameras shall be connected to the monitoring equipment with continuous wiring used as the media transmission system.

- Prior to selection of wireless cameras consider the potential effects, such as geographical area of coverage, environmental interference, and distance from the monitoring location, that impacts the use of this technology.

**10.1.3.4 Color versus black and white cameras:** All CCTV cameras shall be color that allows for black and white applications.

- Cameras shall be able to switch between color and black and white through a programmable feature built into the camera.
- Color shall be the primary mode automatically switching to black and white when light levels drop below normal specifications.
- Cameras will be set to black and white on a full time basis only when installed in a low light level that requires the camera to operate at a higher resolution than normal.

**10.1.3.5 Camera lenses:** CCTV camera lenses shall be used in a manner that provides maximum coverage of the area being monitored and shall meet the following requirements.

- Two types of lenses shall be used for both interior and exterior fixed cameras.
  - Manual variable focus lenses shall be used in large areas monitored by the camera and shall allow for settings at any angle of field to maximize surveillance coverage.
  - Auto iris fixed lenses shall be used in areas where a small specific point of reference is monitored.
- Specific lens size shall be determined using a field-of-view calculation provided by the manufacture.

**10.1.3.6 Camera enclosures:** All cameras and lenses shall be enclosed in tamper resistant housing.

- Both interior and exterior cameras shall be housed within a tamper-proof camera enclosure.
- Exterior camera enclosures shall be environmental proof to protect against unique weather elements associated with the specific facility geographical area.

**10.1.3.7 Camera installation, mounts, poles, and bases:** All camera equipment shall be installed to ensure that all components are fully compatible as a system. Adhere to guidance provided by the National Electrical Contractors Association Standard, NECA 303-2005, Installing Closed-Circuit Television (CCTV) Systems.

- Camera mounts shall be installed on approved mounting surfaces structured for weight, wind load, and extreme weather conditions.
- Camera mounts shall be installed in a manner that will not inhibit camera operation or field of view.
- Where camera is mounted to a rooftop or within a parapet, ensure that the mount is designed and installed in a manner that the equipment can be swiveled inward for maintenance and upkeep purposes.
- All camera poles shall be constructed of metal with a concrete base and shall be installed and grounded in accordance with the National Electrical Code (NEC).
- Camera poles shall be weather resistant.
- Camera pole heights shall be no less than 15 feet (4.6 m) and no greater than 50 feet (15.2 m) high.
- Cameras and their mounts may share the same pole with lighting when the following conditions are met:
  - A hardened wire carrier system is installed inside the pole to separate the high voltage power cables for the lighting from the power and signal cables for the camera and mount.
  - The camera and mount are installed and positioned in a manner that the lighting will not deter from, cause blind spots or shadows, and interfere with the video picture and signal.
- All camera poles and mounts shall be installed in locations that will allow for optimum view of the area of coverage.

**10.1.3.8 Power source:** All CCTV cameras and mounts shall be powered remotely by a UL listed power supply unit (PSU) as follows.

- The PSU shall have the ability to power at least four exterior cameras or eight interior cameras.
- A back-up direct power feed from a security system power panel shall be provided to the camera and mount. A step down transformer shall also be installed at the camera location to ensure a proper operating voltage is provided to the camera and mount.
- The CCTV system shall be supported by a UPS and/or dedicated stand-by generator circuit to ensure continuous operation of cameras including all surveillance monitoring and recording equipment.

**10.1.3.9 Lightning and surge protection:** With the exception of fiber optic cables, all cables and conductors that act as control, communication, or signal lines shall include surge protection.

**10.1.3.10 Site coordination:** Site and building exterior lighting shall be coordinated and installed in a manner that allows the CCTV system to provide positive identification of a person, vehicle, incident, and location.

- Lighting shall not provide bright illumination behind the main field of camera view.
- Cameras shall be installed in a manner that no lighting will point directly at the camera lens causing blind spots and black outs.
- Provide routine maintenance of lighting systems and replacement of lighting fixtures and luminaries that are necessary for operational integrity of the CCTV system.
- CCTV cameras shall be installed so that landscaping will not deter from the intended field of view.
  - Cameras shall not be mounted in trees, bushes, or any other natural landscape that will in the long term degrade the view or operation of the CCTV system.
  - Cameras shall not be installed behind, next to, or on any natural or man-made object that will restrict the field of view, cause signal loss, or prevent the camera from being fully operational.
  - Perform routine landscape maintenance that is necessary for operational integrity of the CCTV system.

#### 10.1.4 Additional CCTV System Components

**10.1.4.1 Monitors:** All CCTV monitors shall be color and able to display analog, digital, and other images in either NTSC or MPEG format associated with the operation of the Security Management System (SMS).

**10.1.4.2 Matrix switcher/network server (controlling equipment):** Controlling equipment shall be used to call up, operate, and program all cameras associated CCTV system components. Controlling equipment shall have the ability to operate the cameras locally and remotely. A matrix switcher or a network server shall be used as the CCTV system controller. The controlling equipment shall allow the transmission of live video, data, and audio over an existing Ethernet network or a dedicated security system network, requiring an IP address or Internet Explorer 5.5 or higher. The controlling equipment shall be able to

perform as an analog-to-Ethernet “bridge,” allowing for the control of matrices, multiplexers, and P/T/Z cameras.

**10.1.4.3 Keyboards and joysticks:** A keyboard shall provide direct operator interface with the controlling equipment to allow for call-up, operation of cameras and mounts, and programming of controlling equipment as well as cameras and monitors. Where a matrix switcher is used, ensure the keyboard is outfitted with a joystick to provide direct interface with CCTV camera controls.

## 10.1.5 Controlling and Recording Equipment

All cameras on the CCTV system shall be recorded in real time using a Digital Video Recorder (DVR), Network Video Recorder (NVR), or a Time Lapse Video Recorder (VCR). The type of recording device shall be determined by the size and type of CCTV system designed and installed, as well as the extent to which the system is to be used. The following criteria shall be followed when choosing a CCTV camera recording device.

**10.1.5.1 DVR:** The DVR shall be used within the CCTV system for large or small CCTV system set-ups. The DVR may be used in place of a time lapse VCR regardless of how the CCTV system is designed and installed. The DVR may be installed with the SMS or as part of a CCTV system network. The DVR shall be Internet Protocol (IP) addressable. Programming, troubleshooting, and all general maintenance and upgrades to the DVR shall be done locally at the recording unit.

- The DVR shall have a built-in compact disc-recordable (CD-R) for downloading of the buffer to compact disc (CD) for back-up.
- The DVR buffer shall be cleared and all information transferred to CD when the buffer is at no greater than 60% of capacity.
- Compact disc-read only memory (CD-ROM) shall be stored in a dry, cool, central location that is secure. Recordings shall be stored in accordance with VA Police directives.

**10.1.5.2 NVR:** The NVR shall be used within the CCTV system for large or small CCTV system set-ups. The NVR shall be used when the CCTV system is configured as part of the SMS only. Input to the NVR shall be considered when designing and installing all cameras that will be connected to the NVR.

- Ensure the proper signal converter is used to interface non-Power over Ethernet (PoE) cameras over to a Category Five (CAT-V) cable.
- The NVR shall provide for either direct download of data to a computer storage device or CD-ROM. All storage media shall be stored in a dry, cool,



central location that is secure, and storage media shall be held as directed by the VA Police.

**10.1.5.3 Time lapse VCR:** The time lapse VCR shall be used for all CCTV systems of fewer than 16 cameras and that are not part of an SMS or connected to a CCTV system network.

- A time lapse VCR using analog tapes shall have the capability to record on a continuous 24-hour basis.
- These recordings shall be stored in a dry, cool, central location that is secured and shall be maintained in accordance with VA Police directives.
- The time lapse VCR shall be used as a back-up to DVR and NVR equipment.

### 10.1.6 Video Motion Detection

CCTV cameras shall have built-in video motion detection capability that automatically monitors and processes information from each CCTV camera. Cameras shall be programmed to automatically change viewing of an area of interest without human intervention and shall automatically record the activity until reset by the CCTV system operator.

**10.1.6.1 Timing:** This feature shall detect motion within the camera's field of view and provide the SCC monitors immediate automatic visual, remote alarms, and motion-artifacts as a result of detected motion.

**10.1.6.2 Interface with IDS:** The video motion detection shall be interfaced with the intrusion detection system (IDS) to provide redundancy in the security alarm reporting system.

**10.1.6.3 Other system interface:** Cameras shall be designed to interface and respond to exterior and interior alarms, security phones/call-boxes, duress alarms, and intercoms upon activation.

### 10.1.7 Camera Locations

Refer to Appendix A, Security Door Openings Matrix, and Appendix B, Security System Application Matrix, for CCTV system component locations.

## 10.2 INTRUSION DETECTION SYSTEM (IDS)

The Intrusion Detection System (IDS) includes motion detection, glass break, and door contact sensors, among other devices. These devices provide alternative



methods to detect actual or attempted intrusion into protected areas through the use of alarm components, monitoring, and reporting systems. The IDS shall have the capability of being integrated with DSPI, PACS, and CCTV systems. All IDS shall meet UL 639 Intrusion Detection Standard.

## 10.2.1 System Elements and Features

IDS shall be used to monitor the site perimeter, building envelope and entrances, and interior building areas where access is restricted or controlled. Refer to Appendix A, Security Door Openings Matrix, and Appendix B, Security System Application Matrix, for IDS component locations.

## 10.2.2 System Integration

IDS shall be able to be fully integrated with other security subsystems using direct hardware or computer interface.

## 10.2.3 Planning and Selection Criteria

IDS shall provide multiple levels or points of detection as far away as possible from an asset to be protected. The type of IDS sensor to be used shall be determined by the criticalness of the asset to protect, size of the protected space, local threat assessment results, and capability of the sensor.

**10.2.3.1 Layout and zoning:** Areas to be covered by sensors shall be charted and set up in protection or coverage zones prior to selection and placement of sensors. IDS devices of different technologies such as motion detection, glass break, and magnetic contacts shall be zoned separately.

**10.2.3.2 Physical environment:** A survey shall be conducted to determine whether conditions exist that may adversely affect the sensors and cause them not to detect within their performance limits or to cause false alarms.

- For exterior applications consider the effects of foliage, rain, fence fabric, underground utilities, and other environmental conditions.
- Interior applications of sensors shall consider HVAC location, heat sources, transient light, vibration, moving machinery, dust, and humidity.

## 10.2.4 Networked versus Stand-alone

**10.2.4.1 Networked:** IDS devices shall be networked when multiple sensors and controllers are being utilized. All components of the IDS shall be monitored and controlled at a single point.

**10.2.4.2 Stand-alone:** Stand-alone IDS shall be used for single office space only as determined by the Project Manager and shall be a means to compliment the physical access control system (PACS) and CCTV system.

## 10.2.5 Hardwired versus Wireless

**10.2.5.1 Hardwired alarms:** All sensors and controllers shall be hardwired and directly connected to the local controller, keypad, or other security subsystems using proper cabling.

**10.2.5.2 Wireless alarms:** Wireless alarms may be used only where the surrounding building construction and environment will not degrade the effective range of the alarm signal. Where a wireless IDS system is used it must meet Federal Communication Commission (FCC) wireless transmission standards.

## 10.2.6 Environmental Conditions

IDS devices shall be selected and installed to be fully functional under all environmental conditions for the specific location.

## 10.2.7 Interior Sensors

Interior sensors shall be used to detect the presence of an intruder or an attempt to gain entry into controlled and restricted areas. These areas include but are not limited to exterior and interior entrances, such as doors, windows, walls, roof and ceilings, ventilation, underground tunnels, and pathways. The following sensor options shall be applied based upon the level of protection required and the type of area to be monitored.

**10.2.7.1 Balanced magnetic switches (BMS):** BMS shall be used to detect attempted access or entry of interior and exterior doors and fence gates. BMS may be either recessed or surface mounted; the preferred method is to use a recess mounted switch to reduce the ability to defeat the system.

- When double doors or gates require protection, each door shall be fitted with a separate magnetic switch.
- Surface mounted switches shall be mounted on the protected side of the door.
- When protecting roll-up doors wider than 80 inches (2 m), BMS shall be mounted on both left and right sides on the interior side of door.

**10.2.7.2 Glass break sensors:** Sensors shall be used to detect attempts to penetrate glass by detecting vibrations and acoustic emanations associated with breaking or cutting glass. All perimeter windows within 40 feet (12.2 m) of ground level and windows accessible from an adjoining building roof or within 25 feet

(7.2 m) directly or diagonally opposite a window, building, roof, or fire escape shall use a glass break sensor. Glass break sensors shall be used on windows that exceed 37 in<sup>2</sup> (240 cm<sup>2</sup>) with any dimension greater than 8 inches (200 mm).

- Windows with security mesh screen do not require glass break sensors. For windows with air conditioning units installed, the mesh screen must encompass the air conditioner.

**10.2.7.3 Volumetric sensors:** Also known as a “space sensor,” volumetric sensors shall be used for interior confined spaces. Active or passive sensors may be used. Sensitivity shall be adjustable and set to provide maximum protection while reducing false alarms. PACS shall be provided in protected spaces where volumetric detection is provided and shall activate or deactivate the volumetric sensor upon presentation of a proper access control credential.

**10.2.7.4 Passive infrared sensors (PIR):** PIR shall meet the requirements of ANSI/SIA PIR-01, Passive Infrared Motion Detector Stands-Features for Enhancing False Alarm Immunity, and shall be capable of detecting changes in infrared energy or heat. A 360-degree field of view configuration shall be preferred for sensor monitoring purposes, but the final determination of configuration for field of view, which may be 360, 180, 90 or 45 degrees, shall be determined from a field survey and mounting surface availability. Sensitivity of the sensor shall be adjustable to provide the necessary area of protection.

**10.2.7.5 Vibration sensors:** The building boundary wall to be protected shall use vibration detection sensors mounted to the wall with close spacing to assure detection of attempted penetration before the wall is breached. Vibration sensors shall be used in combination with BMS for safes and vaults. Wall mounted shock/vibration sensors shall be provided with LEDs to indicate activation and shall be mounted to provide a clear view of the LED. Except for small areas, sensors zoned together shall not cover more than one wall.

**10.2.7.6 Video motion detection sensor (VMD):** Refer to section 10.1.

**10.2.7.7 Pressure mats:** Pressure mats shall be used on the interior side of an entry way and shall be concealed under a lightweight mat or carpeting. Pressure mats shall be used in conjunction with other sensor technologies and shall not be relied on as the sole intrusion detection device for space protection.

## 10.2.8 Exterior Sensors

Exterior sensors shall only be used for perimeter protection when the area to be protected is bordered by a fence or physical barrier. Exterior perimeter detection

capability shall be applied to fenced areas around a site or building, loading docks, and outside storage areas or enclosures, using volumetric sensors in addition to BMS on access gates. Where CCTV cameras with video motion detection are used, exterior sensors may not be necessary. Facilities that use a fence to define boundaries shall address the use and necessity of fence mounted sensors, microwave sensors, or photoelectric beams.

**10.2.8.1 Microwave:** Microwave sensors shall use a multiple-beam configuration and only be used when there is a clear line of sight between a transmitter and receiver and the ground is fairly level. Microwave sensors shall not be used near outdoor fluorescent lights.

**10.2.8.2 Infrared system:** For outdoor applications active infrared systems shall be used in a multi-beam arrangement to create an invisible fence or corral around the protected area. These systems are affected by fog, rain, and snow and shall not be installed where local climatic conditions would cause interference.

**10.2.8.3 Buried cable:** For high-risk and mission critical facilities that require perimeter protection or perimeters that do not have a fence that can provide protection, buried cable sensors shall be considered in combination with another outdoor perimeter detection technology. To reduce false alarms, buried cable sensors including seismic, pressure, and leaky coaxial cables shall not be used in extreme cold environments where there is heavy ice or locations with heavy ground disturbances, low-flying aircraft, or underground utility lines and pipes.

**10.2.8.4 Fence mounted sensors:** Fence mounted sensors include tension wire, capacitance, electric vibration, and shock sensors. When using fence mounted sensors a BMS shall be installed at the pedestrian and vehicle access point gates.

**10.2.8.5 Video motion detection sensor (VMD):** Refer to section 10.1.

## 10.2.9 Alarm Conditions

Conduct a field survey to determine security response capability to all alarm conditions, such as bells, sirens, strobes, or silent alarms. Silent alarms may be integrated with CCTV camera coverage. After activation, the SCC personnel and VA Police shall deactivate and re-set the alarms.

## 10.2.10 Installation

To ensure proper operation, maximum detection capability, and minimize false alarms, IDS shall be installed in accordance with manufacture instructions, National Fire Protection Agency (NFPA) 731 *Standard for the Installation of Electronic*

*Premises Security Systems and UL 681 Installation and Classification of Burglar and Holdup Alarm Systems.* All IDS shall be capable of continuous operation and monitoring through the use of battery backup, uninterrupted power supply, stand-by generator, and/or a backup monitoring location.

### 10.2.11 IDS Locations

The IDS shall be designed to interface with CCTV cameras. Refer to Appendix A, Security Door Openings Matrix, and Appendix B, Security System Application Matrix, for CCTV system component locations.

## 10.3 PHYSICAL ACCESS CONTROL SYSTEM (PACS)

The Physical Access Control System (PACS) shall include, but not be limited to: card readers, keypads, biometrics, electromagnetic locks and strikes, and electronic security management system (SMS).

### 10.3.1 System Elements and Features

PACS devices shall be used for the purpose of controlling access and monitoring building entrances, sensitive areas, mission critical asset areas, and alarm conditions from an access control perspective. This includes maintaining control over defined areas such as site access points, parking lot areas, building perimeter, and interior areas that are monitored from a centralized SCC.

### 10.3.2 System Integration

PACS shall be able to be fully integrated with other security subsystems using direct hardwire or computer interface.

### 10.3.3 Stand-alone versus Network Multiple-Portal System

**10.3.3.1 Stand-alone:** Stand-alone systems shall be used to control access to a single entry control point and shall be available either as one integral unit or as two separate components. Data for the entire user population will be stored within a communication panel for future reference and reporting purposes.

**10.3.3.2 Network multiple-portal system:** Multiple-portal systems shall be part of a large network of readers and controllers that are connected to a central processing unit (CPU) that will regulate activities at more than one entry point at a time. All systems will be directly under the control of the CPU and will be programmed to receive periodic programming updates and upload data according to a preprogrammed schedule.

### 10.3.4 Control/Communications Panel

All panels shall be centrally located within a space that will prevent panels from being damaged, tampered with, and accessed by unauthorized personnel.

### 10.3.5 Electronic Security Management System (SMS)

The SMS shall allow the configuration of an enrollment and badging, alarm monitoring, administrative, asset management, digital video management, intrusion detection, visitor enrollment, remote access level management, and integrated security workstations or any combination of all or some.

**10.3.5.1 Head-end hardware:** Head-end hardware shall provide direct interface of all PACS equipment via a hardwired input.

**10.3.5.2 Entry control software:** Software shall allow for programming of the PACS via a CPU. All software shall be updated per manufacturer's instructions.

**10.3.5.3 Network interface devices:** Interface devices shall consist of all hardware and software required to allow for full interface with other security subsystems via a CPU.

**10.3.5.4 Records management and reports:** The SMS shall have the ability to compose, file, maintain, update, and print reports for either individuals or the system.

- Individual reports shall consist of an employee's name, office location, phone number or direct extension, and normal hours of operation and shall provide a detail listing of the employee's daily events in relation to accessing points within a facility.
- System reports shall produce information on a daily/weekly/monthly basis for all events, alarms, and any other activity associated with a system user.
- All reports shall be in a date/time format and all information shall be clearly presented.

**10.3.5.5 Functional requirements:** The SMS shall provide the ability to control, program, and monitor the PACS and all additional security subsystems that are designed to interface with the PACS and SMS.

### 10.3.6 Picture ID and Badging Station Interface

The badging station shall provide a form-based interface for the entry of badge holder data and access information. All data, including images, shall be stored on the SMS

system server. The badging station shall allow image and signature capture for use in badge production and provide tools for badge design. Both video and digital cameras may be used.

### 10.3.7 Card Credentials and Readers

All card credentials shall comply with Homeland Security Presidential Directive (HSPD) 12, Policy for a Common Identification Standard for Federal Employees and Contractors, and the Federal Information Processing Standards (FIPS) 201, Personal Identity Verification (PIV) of Federal Employees and Contractors. Smart card implementation shall adhere to the Government Smart Card Interoperability Specification (GSC-IS).

### 10.3.8 Entry Control Device

All entry control devices shall be hardwired to the PACS main control panel and operated by either a card reader or a biometric device via a relay on the control panel.

**10.3.8.1 Door devices:** Entry control devices on a door may be any of the following: electronic strike, electronic mortise lock, or electromagnetic lock.

**10.3.8.2 Turnstiles:** Turnstiles may be considered as a means of access control as an option to controlling access through lobby areas based on the size and traffic throughput. Depending upon the application, the following security turnstile equipment may be utilized: optical, waist high, drop arm, rotary gate, or mass transit.

### 10.3.9 Biometric Systems

As a means of secondary access control to card readers, biometric devices may be used for high-level control and restricted areas. Biometric systems have unique and limited applications and are not suited to all access control requirements. The types of biometric devices that may be used include: hand/palm geometry, fingerprint verification, retinal verification, or voice verification.

### 10.3.10 Portal Control Devices

Portal control devices, such as a push button, request-to-exit, or panic/crash bar, shall be used as a means of assisting persons exiting a controlled space and shall provide a secondary means of access control within a secure area. Portal control devices provide the means to override the PACS via a keypad or key bypass and assists in door operations using automatic openers and closures. Portal control devices shall be connected to and monitored by the main PACS panel or SMS.



### 10.3.11 Door Status Indicators

Door status indicators, such as a door position switch or request-to-exit push button, shall monitor and report door status to the SMS.

### 10.3.12 Transmission Media

All PACS control panels shall interface with a CPU in accordance with appropriate media connections. Panels shall be system specific addressable, Internet Protocol (IP) addressable, and programmable via a computer. All panels shall be interfaced directly from a computer or via the Internet or Intranet. Access to the panels shall be password protected. All individuals with access to the panels shall be assigned a user specific password.

### 10.3.13 Locations

Refer to Appendix A, Security Door Openings Matrix, and Appendix B, Security System Application Matrix, for PACS system component locations.

## 10.4 DURESS, SECURITY PHONES, AND INTERCOM SYSTEM (DSPI)

The section addresses physical security criteria associated with the selection, application, and performance of the intercommunications system, also referred to as duress, security phones or emergency call-boxes, and intercom system (DSPI).

### 10.4.1 System Elements and Features

The DSPI system is used to provide security intercommunications for access control, emergency assistance, and identification of locations where persons under duress request a security response. Refer to Appendix B, Security System Application Matrix, for locations where DSPI devices shall be used.

**10.4.1.1 DSPI system compatibility:** All components of the DSPI shall be fully compatible and shall not require the addition of interface equipment or software upgrades to ensure a fully operational system.

**10.4.1.2 System integration:** DSPI shall be fully integrated with other security subsystems.

**10.4.1.3 Handicapped accessibility:** DSPI systems shall be handicapped accessible.

**10.4.1.4 Security intercoms:** The main components of this security subsystem are the hardwired master intercom and remote intercom stations. Intercom



devices shall be integrated with the CCTV system upon initiation and activation of a two-way conversation. Where wireless systems are used, repeaters shall be required. Typical locations for security intercoms shall include:

- Access controlled entry points to a site, parking, and perimeter building areas.
- Gated access and service road entry points.
- Loading docks and shipping/receiving areas.
- Interior building access control points to restricted areas.

**10.4.1.5 Intercom door release:** Security intercom with remote door release capability shall be used for functional areas that require PACS. The security intercom system shall be integrated with electronic or magnetic remote door release allowing for remote communication and unlocking of doors from a reception desk or SCC master intercom station. The security intercoms for these areas shall have both an audio and built-in video capability. Video verification of person(s) requesting access at these points shall be required.

**10.4.1.6 Intercom master station:** The master station shall be capable of selectively calling and communicating with all intercom stations individually or system wide. Master stations shall have a “call in” switch to provide an audible and visual indication of incoming calls from remote stations. The master station shall include, but not be limited to, a handset, microphone/speaker, volume control, push-to-talk button, an incoming call/privacy indicator, and selectors to permit calling and communicating with each remote or other master stations.

**10.4.1.7 Intercom substation:** An Intercom substation shall be capable of calling into a pre-programmed single or group of master stations via the pressing of a button or voice activation. When a programmed master station is not available, the call shall automatically transfer to another master station.

**10.4.1.8 Multi-intercom station:** The multi-intercom station shall have the ability to call or monitor multiple stations individually or as a public address system.

**10.4.1.9 Single intercom station:** A single intercom station only calls or monitors one other intercom location or station at a time; intercoms are direct wired and do not require a master station.

**10.4.1.10 Push-to-Talk (PTT) two-way communications:** PTT is the typical type of intercom activation device, which requires a button be pressed in order to transmit conversation over the intercom.

**10.4.1.11 Voice operated intercom switching (VOX):** VOX automatically switches audio direction based on the sound of a voice. The switch works when a sound is detected by the speaker/transmitter and no push-button is required to transmit a communication. These intercoms shall be used in interior or exterior areas; however, not in areas with high background noise, such as parking garages.

## 10.4.2 Security Phones or Emergency Call-Boxes

An emergency call-box or telephone system shall be used instead of intercoms for a multi-facility environment, a stand-alone facility with a parking structure, or a site with a requirement to transmit call station communications to another site. Emergency call-boxes shall be used in areas such as parking garages/lots, sidewalks, pathways of large campuses, and in isolated areas.

**10.4.2.1 Push button hardwired:** Emergency call-box systems shall be hardwired to a master station located and monitored at a central location, preferably the SCC. Pushing and releasing the emergency call-box call button shall initiate a call-in to a pre-programmed master station. Once the button is pushed, hands-free operation shall occur.

**10.4.2.2 Handset-telephone extension:** Emergency call-boxes shall have the capability of using the existing VA PBX telephone system lines. The PBX shall direct calls to a pre-programmed extension that may be located at a receptionist desk, the SCC, or both. Lifting the handset shall automatically dial a pre-programmed monitoring station. The caller's location shall be defined in the PBX system. A minimum of two numbers shall be programmed into the system, so that if the first number is busy or unavailable the second number will be polled. VA facility telephone systems and emergency call-boxes shall not use automatic voice dialers to 911 or the municipal police department.

**10.4.2.3 Speaker-handset stations:** Emergency call-box stations shall have the capability to automatically cut out the loudspeaker at the station when the phone handset is lifted, allowing conversations to occur through the handset rather than a speaker.

**10.4.2.4 Scream alert option:** Emergency call-boxes shall provide the option that a speaker phone becomes activated when a loud scream is heard. This system shall be limited to indoor applications, such as stairwells and elevators or pre-defined high-threat locations, where background noise will not cause false activation of these devices.

**10.4.2.5 Integration with CCTV Cameras:** Emergency call-boxes shall provide coverage with CCTV when activated or have a built-in camera video surveillance

capability that can be monitored from the SCC upon device activation. See section 10.1.

**10.4.2.6 Remote control and monitoring:** Emergency-call-box master stations shall have the capability of monitoring and automatically polling each call-box, report incoming calls, identify locations, and keep records of all call events via software and integration with the SMS. The system shall provide auto-answer capability to allow VA Police to monitor and initiate calls. The master stations shall have the capability to remotely adjust speakerphone and microphone capabilities and reset the call-box activation from the central monitoring station.

**10.4.2.7 Signaling devices:** Emergency call-boxes shall provide visual recognition devices such as strobes or beacons, which will provide identification of the activated call-box.

**10.4.2.8 Outdoor vs. indoor locations:** All emergency call-boxes shall be installed on rigid structures, columns, walls, poles, and/or freestanding pedestals that are easily identifiable through unique markings, striping or paint, signage or lighting, and shall remain easily visible during low light conditions. CCTV and call-boxes shall be integrated to provide automatic surveillance and priority monitoring of the caller's location.

- Emergency call-boxes in indoor locations shall be easily accessible to the public, clearly marked, and may be wall mounted.
- All emergency call-boxes must be meet handicapped accessibility requirements.

### 10.4.3 Duress/Panic Alarms

Duress/panic alarms shall be provided at locations where there is considerable public contact in isolated and pre-identified high-risk areas, such as the lobby reception desk, patient service areas, nursing stations, and isolated offices and buildings where VA personnel work. Upon activation, a silent alarm signal shall be sent to a centralized monitoring location that shall be capable of continuous operations. Other requirements associated with activated alarms shall include all of the following.

- Alarms shall be continuously monitored by the SCC.
- Activated alarms shall be integrated with CCTV coverage of the area.
- Alarms shall be mounted in such a manner as not to be observable and shall prevent unintentional operation and false alarms.
- At strategic locations use PACS keypads that are capable of activation by a code known only to the user to notify the central monitoring station that the person entering an area is under duress.

**10.4.3.1 Switch/push button hardwired:** The duress/panic alarm system shall be hardwired to a monitoring site or the SCC. Upon activation of the alarm both a visual and audible alarm will be activated in the SCC. The system shall identify the location of the alarm by phone extension and area description.

**10.4.3.2 Wireless:** Before selection and installation of a wireless system a survey shall be conducted to determine if a wireless application is feasible. Wireless systems shall use ultrasonic, infrared, and radio frequency waves to link duress/panic devices with distributed transmitters and receivers. Receivers shall be mounted throughout an area or building, as needed, and hardwired to a central monitoring console. Repeaters shall be used to ensure full coverage. All wireless duress systems must conform to Federal Communications Commission (FCC) standards for wireless communications systems.

**10.4.3.3 Switch/push button telephone extension:** This system shall use an existing telephone line and PBX to transmit a duress alarm. On activation the PBX shall direct the signal with the caller's location defined to a pre-programmed extension located at the SCC. VA facility telephone systems and emergency call-boxes shall not use automatic voice dialers to 911 or the municipal police department.

**10.4.3.4 Wireless-pendant devices:** Wireless duress/panic devices (also known as personal panic alarm, identification duress alarm, or man-down alarm) may be considered as an option. When the panic button is pushed a wireless alarm signal is sent to the closest installed wireless sensing unit, which sends the signal on to a designated alarm monitoring location. Only wireless alarms that provide both geographical location and identification of the individual and have been tested in the operational area, especially in isolated areas impacted by structures, topology, and other influencing factors, shall be used. The use of these devices shall be limited to personnel identified as holding high-risk positions, work in isolated areas, or travel to/from parking areas and buildings that are isolated, especially during hours of darkness. The devices shall meet the following requirements.

- Be convertible and have the capability to be worn on a lanyard around the neck, belt clip, or wristband.
- Include rechargeable batteries with low battery indicators that notify the user and monitoring station of their use.
- Be equipped with a pull chain that activates the device should an attempt be made to forcibly remove it from the person carrying it.
- Only be operational while on VA facility property.

**10.4.3.5 Locators and repeaters:** The duress/panic alarm devices shall be integrated with SCC and SMS software to provide identification and location of the user. Locators shall be required for wireless/pendant devices. Requirements for locators and repeaters shall be as follows.

- Locators shall be placed in strategic locations such as hallways, gathering rooms, parking lots and garages, walking trails, or any place where the location of a person in duress is required.
- For large VA campuses and outside applications, repeaters shall be used that provide true line-of-sight range. The number of repeaters required will depend on the performance of a site survey, capabilities, and coverage distances.

**10.4.3.6 Automated dispatch:** Duress/panic alarm devices shall automatically announce or provide alarm notification signals to on-site pagers worn by VA Police and other designated personnel, hand held portable radios, cell phones, and landline telephones.

**10.4.3.7 Integration with CCTV cameras and IDS:** Duress alarm areas shall be covered by CCTV cameras. Once the duress alarm has been activated the CCTV system shall monitor and record all events associated with the alarm. The IDS will provide monitoring of duress alarm. Refer sections 10.1 and 10.2.

#### 10.4.4 DSPI Locations

Refer to Appendix B, Security System Application Matrix, for DSPI system component locations.

### 10.5 SECURITY CONTROL CENTER (SCC)

This section addresses the application, monitoring, control, programming, and interface of the SCC with all security subsystems: CCTV, IDS, PACS, DSPI, and DSS. Additional requirements for the SCC are covered in section 5.15 and should be coordinated with the fundamental planning concepts and criteria associated with the SCC design and security console operating environment covered in this section.

SCC requirements for Life Safety Protected facilities will vary depending on building type and siting (stand-alone or campus setting). In cases where the LSP facility is part of a campus, security systems shall report to a central SCC located in the main building. For stand-alone facilities, security control and monitoring requirements shall be scaled appropriately to the security systems employed. In buildings that would normally include a security office, such as a large administration building or clinic, an SCC complying with this section shall be required and may be integrated with the security office. In buildings

that do not normally have a separate and distinct security office, security systems may be monitored at a control console located within the administrative space. Secondary monitoring shall not be required for stand-alone LSP facilities.

### 10.5.1 Operational Requirements

The SCC shall provide continuous and consistent monitoring, surveillance, response, and operation of security subsystems.

### 10.5.2 Primary and Secondary Locations

The SCC shall be located in an area that is within the first level of security defense defined by the VA. The SCC shall also be located above any potential flood areas, such as basement.

The SCC shall be located in an area free of background noise influences that could impact equipment and SCC operations. To prevent potential compromise of operations, staff health, and safety, the SCC shall be located away from exterior building walls that are adjacent to roadway traffic, parking, and air intake areas and facility utility, environmental, and operational areas, that if compromised, damaged, or destroyed, could impact SCC operations.

**10.5.2.1 Secondary SCC:** A secondary or backup SCC is not a requirement in life-safety protected facilities.

### 10.5.3 Accessibility

The SCC shall be fully handicapped accessible.

### 10.5.4 Physical Security

The SCC shall have physical security safeguards. The main entry door shall have a card reader or biometric security credential device for authorized personnel and an intercom or similar device for unauthorized persons to request assistance. Provide a fixed CCTV camera connected to a dedicated monitor within the SCC for direct communications and visual verification of the person using the intercom. Remote unlocking of the door shall be prohibited.

### 10.5.5 Construction

See section 5.15.

### 10.5.6 Space Requirements

The size of the SCC shall be defined by the number of console bays required to house and operate the security subsystems and provide adjacency to the VA Police operations

area which includes offices, meeting and training rooms, armory, and holding room. The SCC shall meet UFAS requirements to provide accessibility to the security console, to access equipment and wiring, console pull-out trays and doors, telephones, master intercom stations, base radio communications, and computer terminals. Floor area planning decisions will depend upon whether or not some of the security equipment, such as video surveillance recording equipment, will be rack or wall mounted, imbedded or adjacent to the security console, or located in a separate equipment room. Future expansion of the SCC and security console equipment requirements shall be addressed.

**10.5.6.1 Small SCC:** A small SCC shall contain no more than four security console bays. 150-300 square feet of space shall be provided for a small to medium size SCC operation.

**10.5.6.2 Large SCC:** A large SCC shall contain no less than five and no more than eight security console bays. For large SCC operating environments, 500 square feet of space shall be provided.

**10.5.6.3 Back-up or secondary SCC:** Not a required in life-safety protected facilities.

## 10.5.7 Electrical

Adequate power shall be provided to accommodate the security console equipment and other VA Police and building equipment requirements. The SCC and security console power shall be provided from a dedicated security system power panel. The panel shall be connected to a back-up power source capable of providing continuous power seven days a week for 24 hours a day. All field-mounted security equipment and security closets that interconnect and are monitored by the SCC and surge-protection at the equipment head-end shall be provided with back-up power. There shall be a main power cut-off switch for the SCC equipment located inside the SCC.

Lighting shall be adequate and not cast shadows or create a glare that will reduce the security console operator's ability to monitor security console equipment. All fixtures shall also be on back-up generator power. Finally, special care and consideration shall be given to the use of incandescent and fluorescent lighting, wall mounted battery powered emergency lighting, and illumination to the console writing space.

## 10.5.8 Environmental Applications

The air quality and temperature within the SCC shall allow for a comfortable work environment for both personnel and the security equipment. Ventilation controls shall also be provided on a separate air handling system that provides an isolated supply and return system.



The SCC shall have a dedicated thermostat control unit and cut-off switch to be able to shut off ventilation to the SCC in the event of a chemical, biological, or radiological (CBR) event or other related emergency.

### **10.5.9 Security Console/Workstation**

The SCC security console may use stand-up, sit-down, and vertical equipment racks in any combination to monitor and control the security subsystems. The console shall be ergonomically designed with efficient writing and storage space provided and all security equipment requiring repetitive interaction and response by the console operator shall be easily accessed, observed, and accomplished.

All console bays and equipment racks shall be made of metal, furnished with wire ways, power strips, thermostatic controlled bottom or top mounted fan units, a hinge mounted rear door, front hinged door of Plexiglas, and a louvered top. In addition, space shall be provided for telephones, master intercom units, portable base station radio unit, computer monitors, and printers. All console bays shall be mounted on lockable casters and all console wiring shall be neatly organized, labeled, and made easy to access.

### **10.5.10 Security System Equipment and Interface**

The SCC shall be the central point for all monitoring, controlling, programming, and service for all security systems. Back-up and secondary locations and related security equipment and capabilities may be identified to support the SCC should it become inoperable. All security subsystems shall be fully integrated by either direct hardwiring of equipment or a computer based electronic Security Management System (SMS). The SCC shall house all head-end equipment and primary power sources for each security subsystem.

The SCC and security console shall be integrated with field-equipment through the proper location, layout, and horizontal and vertical access to designated riser space or secure closets/rooms where the transmission of information from security subsystems will transfer to the SCC. This includes establishing, identifying, and gaining authorized consensus on the use of stand-alone versus shared space requirements with other telecommunication space.

Equipment locations, such as wall space for new and upgraded security systems equipment shall be defined in relation to security conduit, power, and panel requirements. Accessibility to areas for installation and security purposes needs to be defined and proximity of these areas to the SCC from an operational efficiency and cost effective perspective shall be addressed.



All equipment that is rack mounted or installed in a security console shall be clearly labeled as to its identification. Labeling, such as in the case of CCTV monitors, may be programmed with a message embedded or programmed on the monitoring screen.

## 10.6 DETECTION AND SCREENING SYSTEMS (DSS) OPTIONAL

Detection and Screening Systems (DSS) include: X-ray machines, walk-through metal detectors (WTMD), hand-held metal detectors (HHMD), and desktop and hand-held trace/particle detectors (also called sniffers and itemizers). The use of DSS equipment may be provided as an optional means for screening persons, items, and materials that may possess or contain weapons, contraband, or hazardous substances prior to authorizing entry or delivery into a facility. Use of DSS equipment may be considered during changes in the Homeland Security Alert System. Each facility shall be addressed on a case-by-case basis concerning the use of DSS.

### 10.6.1 System Elements and Features

DSS are used for the pre-screening of persons, packages, and personal items for detection of contraband; weapons, drugs, explosives, and other potential threatening items or materials prior to authorizing building entry or delivery. Refer to Appendix B, Security System Application Matrix, for optional locations where DSS may be utilized.

**10.6.1.1 DSS system compatibility:** All components of the DSS shall be fully compatible and shall not require the addition of either software or hardware interface equipment.

**10.6.1.2 System integration:** The DSS shall be fully integrated with other security subsystems. Refer to sections 10.1 and 10.4.





# References

This section lists applicable codes and regulations, standards, design guidelines, and resources.

## **American Hospital Association (AHA) American Society for Healthcare Engineering (ASHE)**

- ASHE *The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) Environment of Care Security Standards* at <http://www.ashe.org/ashe/codes/jcaho/ec/index.html>

## **American Institute of Architects (AIA) Academy of Architecture for Health (AAH)**

- *Guidelines for Design and Construction of Health Care Facilities*, 2006

## **American National Standards Institute (ANSI)**

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- ANSI/SIA CP-01-2000: *Control Panel Standard – Features for False Alarm Reduction*
- ANSI/SIA PIR-01-2000: *Passive Infrared Motion Detector Standard – Features for Enhancing False Alarm Immunity*

## **American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) American Society of Mechanical Engineers (ASME)**

- ASME B20.1-2003 *Safety Standard for Conveyor and Related Equipment*

### American Society for Testing and Materials (ASTM)

- ASTM C 1238: *Standard Guide for Installation of Walk-Through Metal Detectors*, December 10, 1997
- ASTM F 476-84(2002): *Standard Test Methods for Security of Swinging Door Assemblies*
- ASTM F 567-00: *Standard Practice for Installation of Chain-Link Fence*
- ASTM F 588-04: *Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact*
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- ASTM F 842-04: *Standard Test Methods for Measuring the Forced Entry Resistance of Sliding Door Assemblies, Excluding Glazing Impact*
- ASTM F 883-04: *Standard Performance Specifications for Padlocks*
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### Architectural and Transportation Barriers Compliance Board (Access Board)

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### Central Station Alarm Association (CSAA)

- CSAA.STA1 *Standard Documents*, April 1996

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- 7 Code of Federal Regulations 331 and 9 Code of Federal Regulations 121 Agricultural Bioterrorism Protection Act of 2002: *Possession, Use, and Transfer of Biological Agents and Toxins*; Final Rule, March 18, 2005
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- 21 CFR 1020.40: *Cabinet X-Ray Systems* (2006)
- 28 CFR Part 36-90: *ADA Standards for Accessible Design* (2006)

- 29 CFR 1910: *Occupational Safety and Health Standards* (2006)
- 36 CFR 1236.1236: *Management of Vital Records*, July 1, 1998
- 41 CFR 101-20.103-4: *Occupant Emergency Program*, July 1, 1998
- 42 CFR 72 & 73: *Possession, Use, and Transfer of Select Agents and Toxins*; Final Rule, March 18, 2005

## Department of Defense (DoD) Unified Facilities Criteria (UFC)

- *DoD Minimum Antiterrorism Standards for Buildings*, UFC 4-010-01, 8 October 2003 (Unrestricted)
- *DoD Security Engineering: Entry Control Facilities/Access Control Points*, UFC 4-002-01, 25 May 2005 (Unrestricted)
- *DoD Minimum Antiterrorism Stand-off Distances for Buildings*, UFC 4-010-10, 8 May 2002 (For Official Use Only)
- *Design of Buildings to Resist Progressive Collapse*, UFC 4-023-03, 25 January 2005 (Unrestricted)

## Department of Health and Human Services (HHS) Centers for Disease Control and Prevention (CDC)

- CDC list of high risk agents and material at <http://www.cdc.gov/>
- CDC-NIH Office of Health and Safety (OHS) *Biosafety in Microbiological and Biomedical Laboratories (BMBL)* 4th Edition, May 1999

## Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA)

- FEMA 426 *Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings* – Risk Management Series, December 2003
- FEMA 452 A *How-to Guide to Mitigate Potential Terrorist Attacks Against Buildings* – Risk Management Series, January 2005

- Federal Preparedness Circular (FPC) 60: *Continuity of the Executive Branch of the Federal Government at Headquarters Level During National Security Emergencies*, November 20, 1990
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- Homeland Security Presidential Directive (HSPD) 7: *Critical Infrastructure Identification, Prioritization, and Protection*, December 17, 2003
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- SD-STD-01.01: *Forced Entry and Ballistic Resistance of Structural Systems*, April 30, 1993
- SD-STD-02.01: *Test Method for Vehicle Crash Testing of Perimeter Barriers and Gates*, March 2003

## Department of Veterans Affairs (VA)

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- VA Design Manuals, *Automatic Transport Systems*, February 2000
- VA Design Manuals, *Interior Design*, May 2006
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- *VA Signage Design Guide*, 2/2005
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### International Code Council (ICC)

- International Building Codes, International Code Council

### International Organization for Standardization (ISO)

- ISO 7816-1 1998: *Smart Card Standard: Physical Characteristics of Integrated Circuit Cards*
- ISO 7816-2 1999: *Smart Card Standard: Dimensions and Location of the Contacts*
- ISO 7816-3 2006: *Smart Card Standard: Electrical Signals and Transmission Protocols*
- ISO 7816-4 2005: *Smart Card Standard: Interindustry Commands for Interchange*
- ISO 14443 2003: *RFID cards; Contactless Proximity Cards Operating at 13.56 MHz in up to 5 inches distance*
- ISO 15693 2000: *RFID cards; Contactless Vicinity Cards Operating at 13.56 MHz in up to 50 inches distance*



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- NECA 303-2005, *Installing Closed-Circuit Television (CCTV) Systems*

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- UL 1981 *Standard for Central-Station Automation Systems*, June 30, 2003
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- Publication 166, *Mail Center Security Guidelines*, September 2002

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- Presidential Decision Directive (PPD) 67: *Enduring Constitutional Government and Continuity of Government Operations*, October 21, 1998

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- ISO 7816-3: *Smart Card Standard: Electrical Signals and Transmission Protocols*
- ISO 7816-4: *Smart Card Standard: Interindustry Commands for Interchange*
- ISO 14443: *RFID cards; Contactless Proximity Cards Operating at 13.56 MHz in up to 5 inches distance*
- ISO 15693: *RFID cards; Contactless Vicinity Cards Operating at 13.56 MHz in up to 50 inches distance*





# Security Door Openings (SDO)

- MATRIX
- TYPES
- SCHEDULE

The Security Door Opening (SDO) Matrix provides a summary of the primary components and functional requirements for the various opening types found in VA facilities. The Matrix is organized by facility type and entry type and is used in conjunction with the Security Door Opening Schedule and the Security Door Types. The Security Door Opening Schedule identifies specific hardware devices and operational requirements for each opening type. The Security Door Types describes the doors and the placement of hardware devices that may be installed on or near the door to make the secured opening function properly.



BUILDING EXTERIOR

Facility Type	Entry Type	SDO	Locations and Descriptions	Facility Classification	Access Control				Monitoring		Other	
					Card Reader	Fail Safe	Fail Secure	Other	ANSI/BHMA* or other function	Door Contact		Other
Hospital ACC Outpatient Clinic NHCU	Public Entrance	101.A	Exterior to Building Main Entrance Lobby with emergency egress Single, opaque, or framed glass	LSP New	yes	X			Magnetic lock or electric strike	yes		
		101.B		LSP Existing	yes	X			Magnetic lock or electric strike	yes		
		101.C			Pair, opaque, or framed glass							
		101.D			Pair, laminated glass (frameless)							
VBA Where VA is the only tenant	Public Entrance	101.A	Exterior to Building Main Entrance Lobby with emergency egress Single, opaque, or framed glass	LSP New	yes	X			Magnetic lock or electric strike	yes		
		101.B		LSP Existing	yes	X			Magnetic lock or electric strike	yes		
		101.C			Pair, opaque, or framed glass							
		101.D			Pair, laminated glass (frameless)							
Hospital ACC Outpatient Clinic NHCU	Staff Entrance	103.A	Exterior to Secondary Building Entrance with emergency egress Single, opaque, or framed glass	LSP New	yes	X			Mag. lock, elec. strike, or F04 entry	yes		Alarmed exit
		103.B		LSP Existing	yes	X			Mag. lock, elec. strike, or F04 entry	yes		Alarmed exit
		103.C			Pair, opaque, or framed glass							
		103.D			Pair, laminated glass (frameless)							
VBA Where VA is the only tenant	Staff Entrance	103.A	Exterior to Secondary Building Entrance with emergency egress Single, opaque, or framed glass	LSP New	no				Push-button comb. or F04 entry	yes		Alarmed exit
		103.B		LSP Existing	no				Push-button comb. or F04 entry	yes		Alarmed exit
		103.C			Pair, opaque, or framed glass							
		103.D			Pair, laminated glass (frameless)							
Research Facilities and Vivariums	Staff Entrance	102.A	Exterior to Secondary Building Entrance with emergency egress Single, opaque, or framed glass	LSP New	yes	X			Magnetic lock or electric strike	yes		Alarmed exit
		102.C		LSP Existing	yes	X			Magnetic lock or electric strike	yes		Alarmed exit
Hospital ACC Outpatient Clinic NHCU VBA	Egress	104.A	Exterior emergency egress only– no access from exterior Single, opaque, or framed glass	LSP New	no				Exit 01	yes		Alarmed exit
		104.C		LSP Existing	no				Exit 01	yes		Alarmed exit
Hospital ACC Outpatient Clinic NHCU VBA	Loading Dock	107.A	Exterior from Loading Dock area to Building Interior - pedestrian only Single opaque or framed glass	LSP New	no				Push-button combination or F07 Storeroom	yes	Hold open alarm	
		107.C		LSP Existing	no				Push-button combination or F07 Storeroom	yes		
Hospital ACC Outpatient Clinic NHCU VBA	Loading Dock	108.0	Exterior from Loading Dock area to Building Interior - equipment and material deliveries Overhead coiling steel	LSP New	yes					yes		
				LSP Existing	yes					yes		

\* References for ANSI/BHMA Designations: "F-\_\_"– ANSI/BHMA A156.13; "Exit \_\_"– ANSI/BHMA A156.3

BUILDING EXTERIOR (continued)

Facility Type	Entry Type	SDO	Locations and Descriptions	Facility Classification	Access Control				Monitoring		Other
					Card Reader	Fail Safe	Fail Secure	Other	ANSI/BHMA* or other function	Door Contact	
Hospital ACC Outpatient Clinic NHCU	Storage	109.A 109.C	Exterior to Storage only with no entrance to building Single opaque Pair opaque	LSP New	no				F07 Storeroom or card reader	yes	
				LSP Existing	no				F07 Storeroom or card reader	yes	
Hospital ACC Outpatient Clinic NHCU VBA	Emergency Access	110.A	Exterior to Building or Fire Control Center Single opaque or framed glass	LSP New	no			Secure Key Storage	F07 Storeroom	no	
				LSP Existing	no			Secure Key Storage	F07 Storeroom	no	
Hospital ACC Outpatient Clinic NHCU VBA	Tunnel	111.A	Exterior to Utility Tunnel Single opaque	LSP New	no				F07 Storeroom	yes	IDS with alarm
				LSP Existing	no				F07 Storeroom	yes	IDS with alarm
Child Care/ Development Center	Child Care	112.A 112.B 112.C 112.D	Exterior to Main Entrance and exit Single, opaque, or framed glass Single, laminated glass (frameless) Pair, opaque, or framed glass Pair, laminated glass (frameless)	LSP New	yes	X			Magnetic lock or electric strike	yes	
				LSP Existing	no				Push-button combination lock	yes	
Hospital ACC Outpatient Clinic NHCU VBA Research and Vivarium	Utility Connections	111.A 111.C	Exterior to Commercial Power Connections Single, opaque Pair, opaque	LSP New	no				F07 Storeroom	yes	IDS with alarm
				LSP Existing	no				F07 Storeroom	yes	IDS with alarm
Hospital ACC Outpatient Clinic NHCU VBA Research and Vivarium	Utility Connections	111.A 111.C	Exterior to Telecommunications and Data Connections Single, opaque Pair, opaque	LSP New	no				F07 Storeroom	yes	IDS with alarm
				LSP Existing	no				F07 Storeroom	yes	IDS with alarm
Hospital ACC Outpatient Clinic NHCU VBA Research and Vivarium	Utility Connections	113.A 113.C	Exterior to Bulk Medical Gas Storage Single, opaque Pair, opaque	LSP New	no				F07 Storeroom	no	
				LSP Existing	no				F07 Storeroom	no	

\* References for ANSI/BHMA Designations: "F-\_\_" – ANSI/BHMA A156.13; "Exit \_\_" – ANSI/BHMA A156.3



BUILDING INTERIOR

Facility Type	Entry Type	SDO	Locations and Descriptions	Facility Classification	Access Control					Monitoring		Other
					Card Reader	Fail Safe	Fail Secure	Other	ANSI/BHMA* or other function	Door Contact	Other	
Hospital ACC Outpatient Clinic NHCU	General	201.A	Public Lobby to Building Interior Single, opaque, or framed glass	LSP New	no				F04 Entry	no		
		201.B	Single, tempered glass (frameless)									
		201.C	Pair, opaque, or framed glass	LSP Existing	no				F04 Entry	no		
		201.D	Pair, tempered glass (frameless)									
VBA  Where VA is the only tenant	General	201.A	Public Lobby to Building Interior Single, opaque, or framed glass	LSP New	no				F04 Entry	no		
		201.B	Single, tempered glass (frameless)									
		201.C	Pair, opaque, or framed glass	LSP Existing	no				F04 Entry	no		
		201.D	Pair, tempered glass (frameless)									
Research Facilities and Vivariums	General	202.A	Public Lobby to Building Interior Single, opaque, or framed glass	LSP New	yes	X			Magnetic lock or electric strike	yes		
		202.C	Pair, opaque, or framed glass	LSP Existing	yes	X			Magnetic, electric strike, or push-button combination	yes		
Hospital ACC Outpatient Clinic NHCU VBA	Mail Room	203.A	Corridor to Mail Room Single, opaque, or framed glass	LSP New	yes		X		F07 Storeroom and electric strike	yes		
		203.C	Pair, opaque, or framed glass	LSP Existing	no				Push-button combination lock	no		
Hospital ACC Outpatient Clinic NHCU VBA	Security Control Center	204.A	Corridor to SCC Single, opaque, or framed one-way glass	LSP New	yes		X		F07 Storeroom and electric strike	yes		FEBR (30 min./ Level III)
				LSP Existing	no				Push-button combination lock	no		FEBR (30 min./ Level III)
Hospital ACC Outpatient Clinic	Police Operations Unit	205.A	Holding Area Single, opaque, or framed one-way glass	LSP New	yes		X		F07 Storeroom and electric strike	yes		
				LSP Existing	yes		X		F07 Storeroom and electric strike	yes		
Hospital ACC Outpatient Clinic NHCU VBA	Guard Station	206.A	Corridor to Security Guard Station Single, opaque, or framed glass	LSP New	yes				F07 Storeroom and electric strike	yes		
				LSP Existing	no				Push-button combination lock	no		

\* References for ANSI/BHMA Designations: "F-\_\_" – ANSI/BHMA A156.13; "Exit \_\_" – ANSI/BHMA A156.3

BUILDING INTERIOR (continued)

Facility Type	Entry Type	SDO	Locations and Descriptions	Facility Classification	Access Control					Monitoring		Other
					Card Reader	Fail Safe	Fail Secure	Other	ANSI/BHMA* or other function	Door Contact	Other	
Hospital NHCU	Canteen Retail Store	207.A	Corridor to Canteen Retail Store Single, opaque, or framed glass	LSP New	no				F07 Storeroom	yes	IDS with alarm	
		207.B	Single, tempered glass (frameless)									
		207.C	Pair, opaque, or framed glass	LSP Existing	no				F07 Storeroom	yes	IDS with alarm	
		207.D	Pair, tempered glass (frameless)									
Hospital NHCU	Canteen Storage	208.A	Canteen Storage Room Single, opaque	LSP New	no				F07 Storeroom	yes	IDS with alarm	
		208.C	Pair, opaque	LSP Existing	no				F07 Storeroom	yes	IDS with alarm	
Hospital	Agent Cashier	209.A	Corridor to Agent Cashier Single, opaque, or framed glass	LSP New	yes	X			F07 Storeroom and electric strike	yes	IDS with alarm	
				LSP Existing	yes	X			F07 Storeroom and electric strike	yes	IDS with alarm	
Hospital	Credit Union	209.A	Public Areas to Credit Union Single, opaque, or framed glass	LSP New	yes	X			F07 Storeroom and electric strike	yes	IDS with alarm	
				LSP Existing	yes	X			F07 Storeroom and electric strike	yes	IDS with alarm	
Hospital ACC Outpatient Clinic NHCU	Pharmacy Cache	210.A	Corridor to Pharmacy Cache Single, opaque, or framed one-way glass	LSP New	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	IDS with alarm	30 minute forced entry
		210.C	Pair, opaque, or framed one-way glass	LSP Existing	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	IDS with alarm	30 minute forced entry
Hospital ACC Outpatient Clinic	Pharmacy Dispensing	211.A	Corridor to Pharmacy Dispensing Area Single, opaque, or framed one-way glass	LSP New	yes	X			F07 Storeroom and electric strike	yes	IDS with alarm	
				LSP Existing	yes	X			F07 Storeroom and electric strike	yes	IDS with alarm	
Hospital ACC Outpatient Clinic	Pharmacy Manuf'g	211.A	Corridor to Pharmacy Manufacturing Area Single, opaque, or framed one-way glass	LSP New	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	IDS with alarm	30 minute forced entry
				LSP Existing	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	IDS with alarm	30 minute forced entry
Hospital ACC Outpatient Clinic	Narcotics Vault	212.A	Pharmacy Cache to Narcotics Vault Single, opaque, or wire mesh	LSP New	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	Hold-open alarm	
				LSP Existing	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	Hold-open alarm	
Hospital ACC Outpatient Clinic NHCU VBA	Veterans' Records	213.A	Corridor to Veterans' Records Single, opaque, or framed glass	LSP New	yes	X			F07 Storeroom and electric strike	yes	IDS with alarm	15 minute forced entry
		213.C	Pair, opaque, or framed glass	LSP Existing	no				Push-button combination lock	yes	IDS with alarm	15 minute forced entry

\* References for ANSI/BHMA Designations: "F-\_\_" – ANSI/BHMA A156.13; "Exit \_\_" – ANSI/BHMA A156.3

BUILDING INTERIOR (continued)

Facility Type	Entry Type	SDO	Locations and Descriptions	Facility Classification	Access Control				Monitoring		Other
					Card Reader	Fail Safe	Fail Secure	Other	ANSI/BHMA* or other function	Door Contact	
Hospital ACC Outpatient Clinic NHCU	Medical Supplies	214.A	Corridor to Medical Supply Storage Single, opaque	LSP New	no				Push-button combination lock	no	
		214.C	Pair, opaque	LSP Existing	no				Push-button combination lock	no	
Hospital ACC Outpatient Clinic NHCU	Linen Storage and Distrib.	215.A	Corridor to Central Linen Storage and Distribution Single, opaque	LSP New	no				Push-button combination lock	yes	IDS with alarm
		215.C	Pair, opaque	LSP Existing	no				Push-button combination lock	yes	IDS with alarm
Hospital ACC Outpatient Clinic NHCU VBA Research Facilities	Information Resource Mgmt.	216.A	Corridor to Information Resource Management (IRM) Single, opaque or framed glass	LSP New	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	IDS with alarm
		216.C	Pair, opaque or framed glass	LSP Existing	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	IDS with alarm
Hospital ACC Outpatient Clinic NHCU VBA Research Facilities	Communications	217.A	Corridor to Telephone Equipment Room Single, opaque or framed glass	LSP New	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	IDS with alarm
		217.C	Pair, opaque or framed glass	LSP Existing	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	IDS with alarm
Hospital ACC Outpatient Clinic NHCU VBA Research Facilities	Telephone and Data Closets	218.A	Corridor to Telephone and Data Closets Single, opaque	LSP New	no				F07 Storeroom	no	
		218.C	Pair, opaque	LSP Existing	no				F07 Storeroom	no	
Hospital ACC Outpatient Clinic NHCU VBA Research Facilities	Electrical Closets	218.A	Corridor to Electrical Closets Single, opaque	LSP New	no				F07 Storeroom	no	
		218.C	Pair, opaque	LSP Existing	no				F07 Storeroom	no	

\* References for ANSI/BHMA Designations: "F-\_\_" – ANSI/BHMA A156.13; "Exit \_\_" – ANSI/BHMA A156.3

BUILDING INTERIOR (continued)

Facility Type	Entry Type	SDO	Locations and Descriptions	Facility Classification	Access Control				Monitoring		Other	
					Card Reader	Fail Safe	Fail Secure	Other	ANSI/BHMA* or other function	Door Contact		Other
Hospital ACC Outpatient Clinic NHCU Research Facilities	Medical Media Equipment Storage	219.A 219.C	Corridor to Medical Media Equipment Storage Single, opaque or framed glass Pair, opaque or framed glass	LSP New	yes				F07 Storeroom and electric strike	yes	IDS with alarm	
				LSP Existing	yes				F07 Storeroom and electric strike	yes	IDS with alarm	
Hospital ACC Outpatient Clinic	Evidence Storage	220.A	Corridor to Evidence Storage Single, opaque	LSP New	yes		X		F07 Storeroom and electric strike	yes	IDS with alarm	FEBR (15 min./ Level III)
				LSP Existing	yes		X		F07 Storeroom and electric strike	yes	IDS with alarm	FEBR (15 min./ Level III)
Hospital ACC Outpatient Clinic	Weapon Storage/ Armory	221.A	Security Control Center to Weapon Storage/Armory Single, opaque	LSP New	yes		X	PIN or Biometrics	F07 Storeroom, electric strike, and magnetic lock	yes	IDS with alarm	FEBR (15 min./ Level III)
				LSP Existing	yes		X	PIN or Biometrics	F07 Storeroom, electric strike, and magnetic lock	yes	IDS with alarm	FEBR (15 min./ Level III)
Hospital Research Facilities	Animal Research Facility	222.A 222.C	Public Area to Animal Research Facility or Vivarium Single, opaque or framed glass Pair, opaque or framed glass	LSP New	yes	X		PIN or Biometrics	F07 Storeroom and electric strike, or magnetic lock	yes	IDS with alarm	
				LSP Existing	yes	X		PIN or Biometrics	F07 Storeroom and electric strike, or magnetic lock	yes	IDS with alarm	
Hospital Research Facilities	Research and Clinical Labs	222.A 222.C	Public Areas to Research and Clinical Laboratories Single, opaque or framed glass Pair, opaque or framed glass	LSP New	yes	X		PIN or Biometrics	F07 Storeroom and electric strike, or magnetic lock	yes	IDS with alarm	
				LSP Existing	yes	X		PIN or Biometrics	F07 Storeroom and electric strike, or magnetic lock	yes	IDS with alarm	
Hospital ACC Outpatient Clinic NHCU Research Facilities	Radio- active Materials Storage	223.A 223.C	Corridor to Areas Containing Radioactive Materials Single, opaque Pair, opaque	LSP New	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	IDS with alarm	
				LSP Existing	yes	X		PIN or Biometrics	F07 Storeroom and electric strike	yes	IDS with alarm	
Hospital ACC Outpatient Clinic NHCU VBA Research Facilities	Fire Control Center	224.A	Fire Control Center to Building Interior Single, opaque	LSP New	no				F07 Storeroom	yes	IDS with alarm	
				LSP Existing	no				F07 Storeroom	yes	IDS with alarm	

\* References for ANSI/BHMA Designations: "F-\_\_" – ANSI/BHMA ; "Exit \_\_" – ANSI/BHMA A156.3

BUILDING INTERIOR (continued)

Facility Type	Entry Type	SDO	Locations and Descriptions	Facility Classification	Access Control				Monitoring		Other
					Card Reader	Fail Safe	Fail Secure	Other	ANSI/BHMA* or other function	Door Contact	
Hospital Research Facilities	Restricted Access Floors	225.0	Elevator to Restricted or Controlled Floor Opaque elevator cab and entrance doors	LSP New	yes		X		Elevator Door Control	yes	
				LSP Existing	yes		X		Elevator Door Control	yes	
Hospital Research Facilities	Restricted Access Floors	226.A	Stair to Restricted or Controlled Area Single, opaque	LSP New	yes	X			Electric Strike and Exit 13	yes	
				LSP Existing	yes	X			Electric Strike and Exit 13	yes	
Hospital Research Facilities	Restricted Access Floors	227.A 227.C	Corridor to Restricted or Controlled Area Single, opaque Pair, opaque	LSP New	yes	X			F07 Storeroom and electric strike	yes	
				LSP Existing	yes	X			F07 Storeroom and electric strike	yes	
Hospital ACC Outpatient Clinic NHCU VBA Research Facilities	Elevator Equipment Room	228.A 228.C	Corridor to Elevator Equipment Room Single, opaque Pair, opaque	LSP New	yes		X		F07 Storeroom and electric strike	yes	
				LSP Existing	no				Push-button combination lock	yes	IDS with alarm
Hospital ACC Outpatient Clinic NHCU VBA Research Facilities	Building Systems	228.A 228.C	Corridor to Building Systems Rooms Single, opaque Pair, opaque	LSP New	yes		X		F07 Storeroom and electric strike	yes	
				LSP Existing	no				Push-button combination lock	no	
Hospital ACC Outpatient Clinic NHCU VBA Research Facilities	Mech. and Electrical	228.A 228.C	Corridor to Mechanical and Electrical Rooms Single, opaque Pair, opaque	LSP New	yes		X		F07 Storeroom and electric strike	yes	
				LSP Existing	no				Push-button combination lock	no	
Hospital Research Facilities	Select Agents	229.A 229.C	Rooms with Select Agents Single, opaque or framed glass Pair, opaque or framed glass	LSP New	yes		X		F07 Storeroom and electric strike	yes	
				LSP Existing	yes		X		F07 Storeroom and electric strike	yes	
Hospital Research Facilities	BSL Labs	230.A 230.C	Public Areas to BSL-3 Laboratory Suites Single, opaque or framed glass Pair, opaque or framed glass	LSP New	yes	X		PIN or Biometrics	Magnetic Lock or electric strike	yes	
				LSP Existing	yes	X		PIN or Biometrics	Magnetic Lock or electric strike	yes	

\* References for ANSI/BHMA Designations: "F-\_\_" – ANSI/BHMA A156.13; "Exit \_\_" – ANSI/BHMA A156.3

BUILDING INTERIOR (continued)

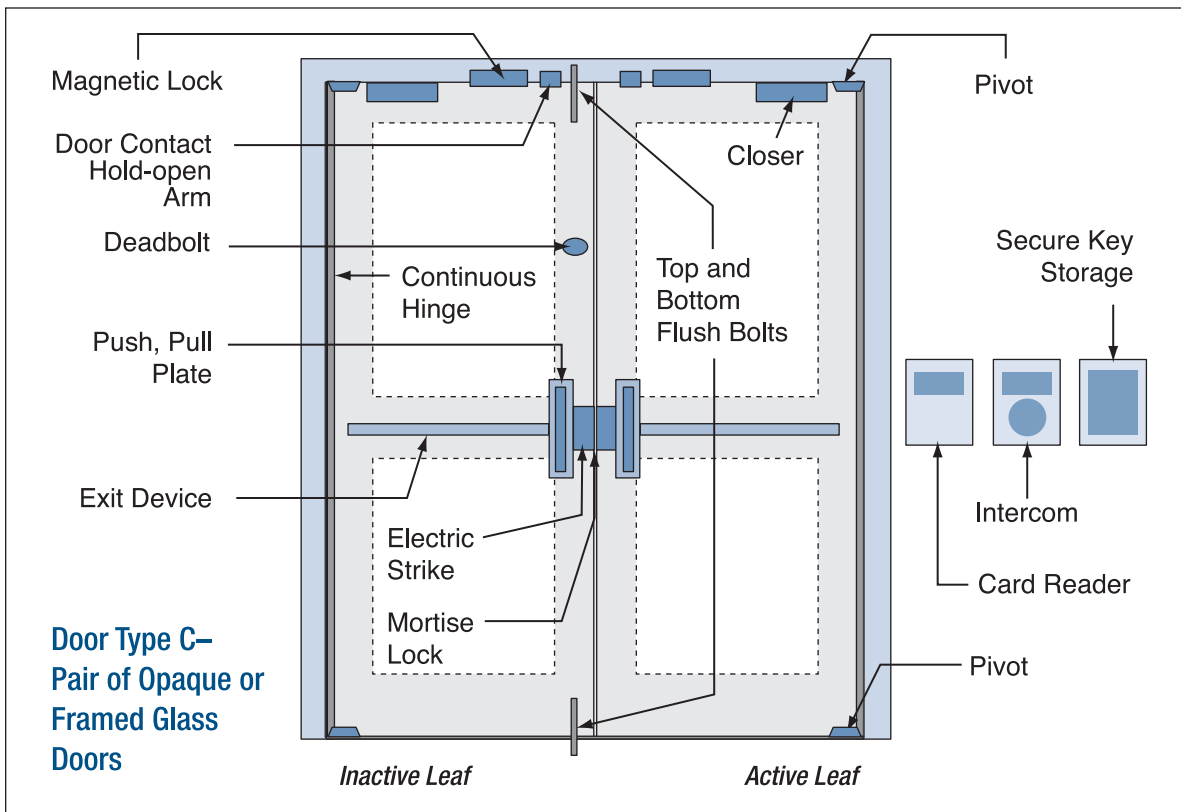
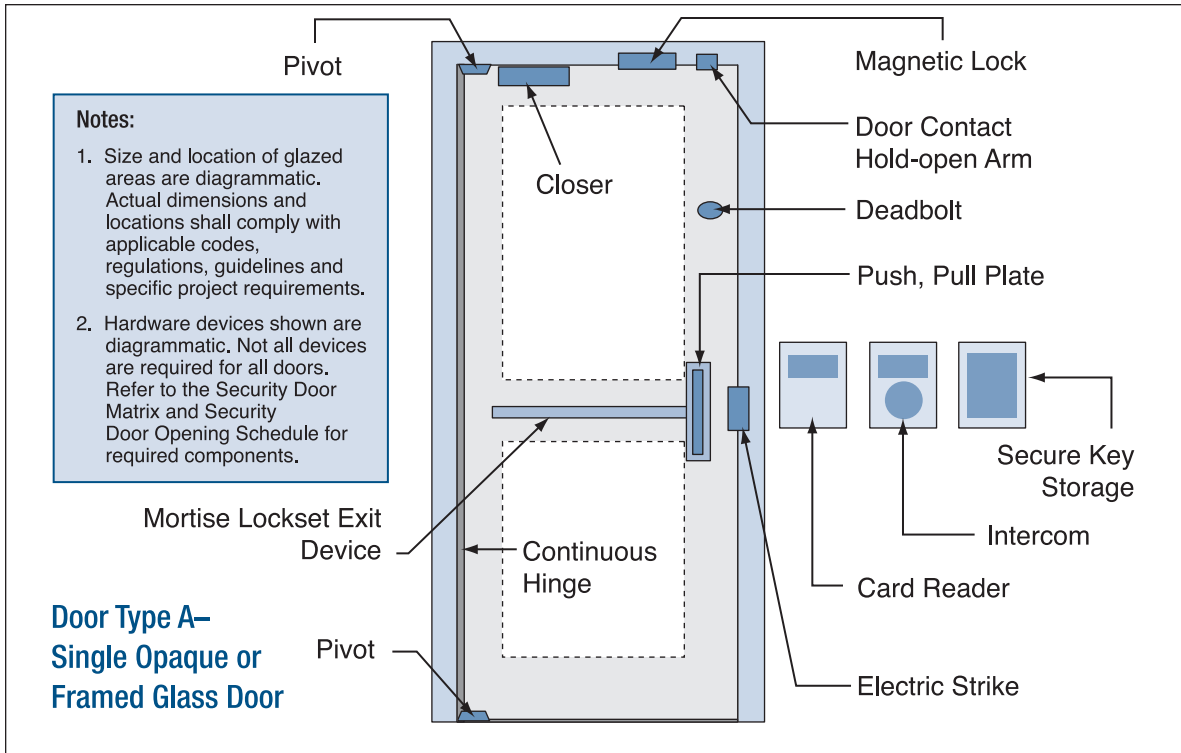
Facility Type	Entry Type	SDO	Locations and Descriptions	Facility Classification	Access Control					Monitoring		Other
					Card Reader	Fail Safe	Fail Secure	Other	ANSI/BHMA* or other function	Door Contact	Other	
Research Facilities	Vivariums	222.A 222.C	Public Area to Vivarium Single, opaque or framed glass Pair, opaque or framed glass	LSP New	yes	X		PIN or Biometrics	Magnetic Lock or electric strike	yes		
				LSP Existing	yes	X		PIN or Biometrics	Magnetic Lock or electric strike	yes		
Research Facilities	Vivariums	222.A 222.C	Vivarium Exit Single, opaque or framed glass Pair, opaque or framed glass	LSP New	yes	X			EXIT 01	yes		
				LSP Existing	yes	X			EXIT 01	yes		
Hospital NHCU	Psychiatric Units	231.A	Public Areas to Psychiatric Unit Single, framed glass	LSP New	yes	X			F01 Passage and magnetic lock	yes		Monitor at NS
				LSP Existing	yes	X			F01 Passage and magnetic lock	yes		Monitor at NS
Hospital NHCU	Psychiatric Units	232.A	Psychiatric Unit Exit Only Single, framed glass	LSP New	no				F01 Passage and magnetic lock	yes		Monitor at NS
				LSP Existing	no				F01 Passage and magnetic lock	yes		Monitor at NS
Hospital	COOP	233.A 233.C	Public Areas to COOP Single, opaque Pair, opaque	LSP New	yes		X		F07 Storeroom, electric strike, and magnetic lock	yes	PIN or Biometrics	
				LSP Existing	yes		X		F07 Storeroom, electric strike, and magnetic lock	yes	PIN or Biometrics	

\* References for ANSI/BHMA Designations: "F-\_\_" – ANSI/BHMA A156.13; "Exit \_\_" – ANSI/BHMA A156.3



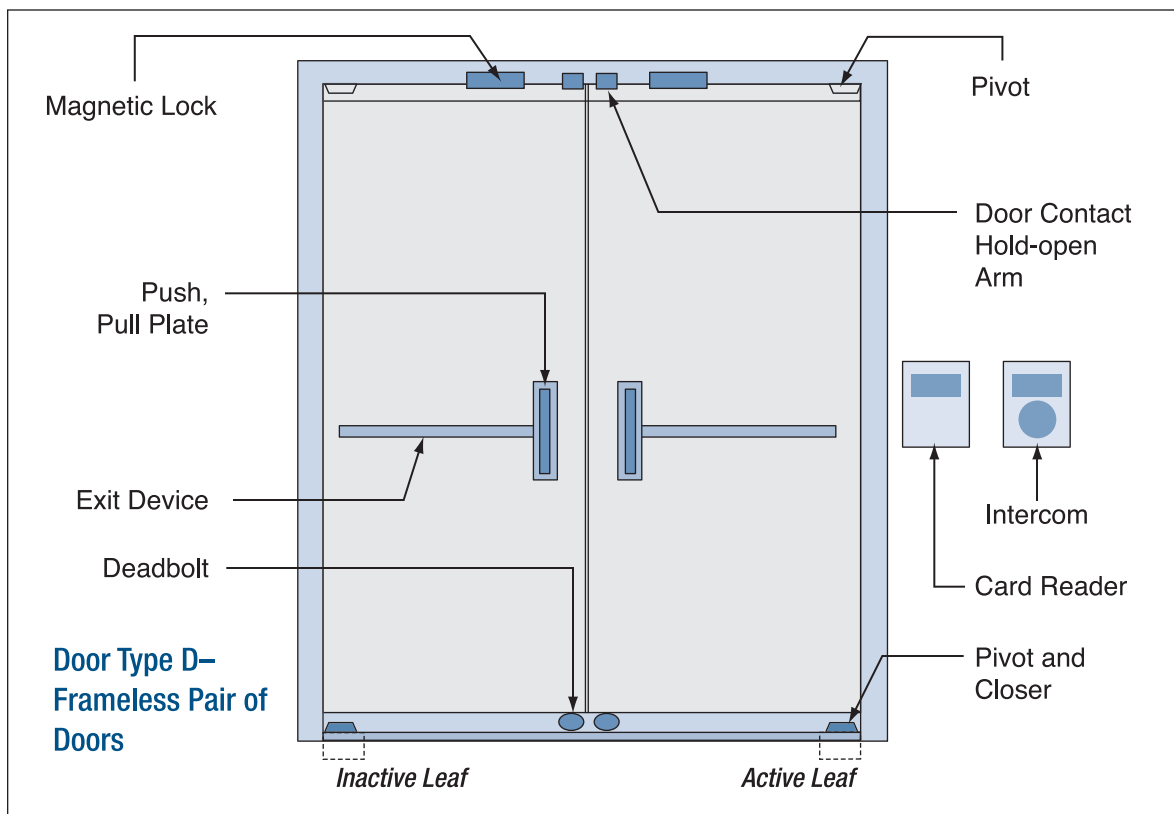
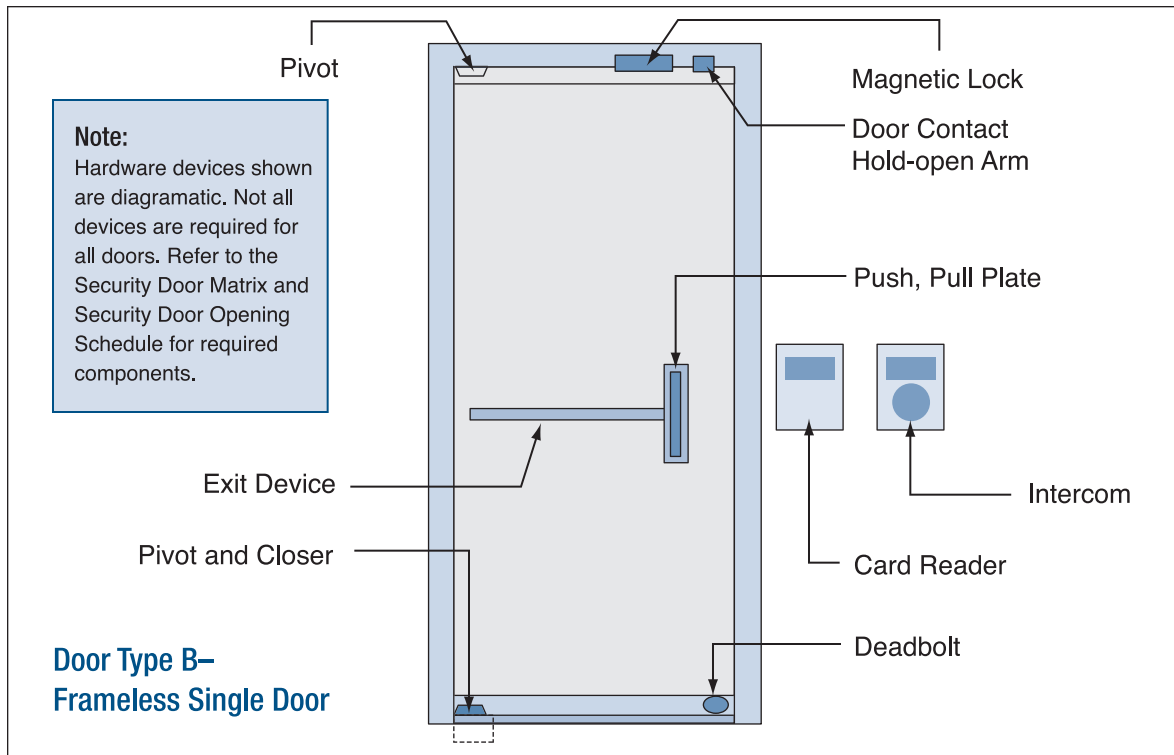


## VA Standard Security Door Types A and C





### VA Standard Security Door Types B and D



## Security Door Opening General Notes and Schedule

1. The hardware devices identified below indicate those generally required to meet the operational and security requirements. They are not all inclusive. Certain devices may not be applicable to every opening. For example, flush bolts are not required for single doors and neither continuous hinges nor electric strikes would be used on frameless doors.
2. When optional operational features are provided, refer to Security Door Openings Matrix for requirements by facility classification.
3. Items required for functional purposes that are not related to door operation are not included in the descriptions below. For example, an intercom may be required at a guard booth so that a visitor can communicate with the guard, but it is not required for door operation.

---

## SDO 101

### Hardware Devices:

- Card Reader
- Closer
- Continuous Hinge or Pivots
- Door Contact
- Electric Strike
- Exit Device
- Flush Bolts
- Intercom
- Magnetic Lock
- Mortise Lock

### Normal Daytime Operation

- Free operation from either side

### After Hours Operation

- Exterior lever inoperative
- Card reader on exterior releases electric strike or magnetic lock
- Remote release releases electric strike or magnetic lock
- Free operation from interior
- Door contact alarmed to central monitoring

---

### SDO 102

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Exit Device
- Flush Bolts
- Hold-open Alarm
- Intercom
- Magnetic Lock
- Mortise Lock

#### Operation At All Times

- Outside lever always rigid
- Card reader releases electric strike
- Free operation from interior at all times

---

### SDO 103

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge or Pivots
- Deadbolt
- Door Contact
- Electric Strike
- Exit Device
- Flush Bolts
- Hold-open Alarm
- Magnetic Lock
- Mortise Lock
- Pull

#### Normal Daytime Operation

- Free operation from either side

#### After Hours Operation

- Exterior lever inoperative
- Card reader on exterior releases electric strike or magnetic lock
- Delayed action and alarmed operation from interior when door is a means of egress; card reader for egress when door is not a required means of egress
- Door contact alarmed to central monitoring

---

## SDO 104

### Hardware Devices

- Closer
- Continuous Hinge or Pivots
- Door Contact
- Exit Device
- Flush Bolts
- Hold-open Alarm
- Mortise Lock

### Operation At All Times

- Operation of exit device from inside retracts bolt and sounds local alarm and central monitoring station
- No operation from exterior

---

## SDO 105

### Hardware Devices

- Power Operator
- Card Reader
- Continuous Hinge
- Intercom
- Magnetic Lock

### Normal Daytime Operation

- Power operated doors (swinging or horizontal sliding)
- Door activated by motion sensor on interior and exterior

### After Hours Operation

- Power operated doors (swinging or horizontal sliding)
- Door activated from exterior by card reader or remote release
- Door activated by motion sensor on interior

---

### SDO 106

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge or Pivots
- Door Contact
- Electric Strike
- Exit Device
- Flush Bolts
- Intercom
- Magnetic Lock
- Mortise Lock

#### Normal Daytime Operation

- Free operation at all times

#### After Hours Operation

- Exterior lever inoperative
- Card reader on exterior releases electric strike or magnetic lock
- Remote release releases electric strike or magnetic lock
- Free operation from interior
- Door contact alarmed to nurses' station

---

### SDO 107

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Hold-open Alarm
- Mortise Lock

#### Operation At All Times

- Outside levers always rigid
- Card reader releases electric strike or key in outside lever retracts latchbolt
- Inside lever retracts latchbolt at all times
- Hold-open alarm annunciates at central monitoring station

---

## SDO 108

### Hardware Devices

- Card Reader
- Door Contact
- Intercom

### Operation At All Times

- Card reader activates motorized door operator or provides access to manual operator

---

## SDO 109

### Hardware Devices

- Continuous Hinge
- Door Contact
- Flush Bolts

### Operation At All Times

- Outside lever always rigid
- Inside lever retracts latchbolt at all times
- Door contact alarmed to central monitoring station

---

## SDO 110

### Hardware Devices

- Closer
- Continuous Hinge
- Knox Box<sup>®</sup>
- Mortise Lock

### Operation At All Times

- Outside lever always rigid
- Key in Knox Box<sup>®</sup> retracts latchbolt from exterior
- Inside lever retracts latchbolt at all times

---

### SDO 111

#### Hardware Devices

- Closer
- Continuous Hinge
- Door Contact
- Flush Bolts
- Mortise Lock

#### Operation At All Times

- Outside lever always rigid
- Key retracts latchbolt from exterior
- Inside lever retracts latchbolt at all times
- Door monitor alarmed at central monitoring station

---

### SDO 112

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge or Pivots
- Door Contact
- Electric Strike
- Exit Device
- Flush Bolts
- Hold-open Alarm
- Intercom
- Magnetic Lock
- Mortise Lock

#### Normal Daytime Operation

- Outside lever always rigid
- Card reader or remote switch release electric strike or magnetic lock
- Inside lever releases latchbolt; card reader, remote switch or fire alarm release magnetic lock
- Door alarmed to central monitoring station

---

## SDO 113

### Hardware Devices

- Closer
- Continuous Hinge
- Flush Bolts
- Mortise Lock

### Operation At All Times

- Outside lever always rigid
- Key retracts latchbolt from exterior
- Inside lever retracts latchbolt at all times

---

## SDO 114

### Hardware Devices

- Closer
- Continuous Hinge
- Mortise Lock

### Operation At All Times

- Outside lever rigid when locked by mechanical device
- Outside lever free when unlocked by mechanical device
- Inside lever retracts latchbolt at all times

---

## SDO 201

### Hardware Devices

- Closer
- Continuous Hinge or Pivots
- Exit Device
- Flush Bolts
- Mortise Lock

### Normal Daytime Operation

- Outside (lobby side) lever set for free operation
- Free passage from interior

### After Hours Operation

- Outside (lobby side) lever rigid
- Free passage from interior



---

### SDO 202

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Exit Device
- Flush Bolts
- Hold-open Alarm
- Intercom
- Magnetic Lock
- Mortise Lock

#### Operation At All Times

- Outside lever always rigid
- Card reader or remote switch release electric strike or magnetic lock
- Card reader and fire alarm release magnetic lock from interior
- Inside lever retracts latchbolt at all times

---

### SDO 203

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Hold-open Alarm
- Mortise Lock

#### Operation At All Times

- Outside lever always rigid
- Outside card reader releases electric strike or outside combination lock retracts latchbolt
- Inside lever retracts latchbolt at all times
- Door alarmed to central monitoring station

---

## SDO 204

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Mortise Lock

### Operation At All Times

- Outside lever always rigid
- Outside card reader releases electric strike or outside combination lock retracts latchbolt
- Inside lever retracts latchbolt at all times
- Door alarmed to central monitoring station

---

## SDO 205

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Deadbolt
- Door Contact
- Electric Strike
- Mortise Lock

### Operation At All Times

- Outside and inside levers always rigid
- Card reader releases electric strike
- Door monitor alarmed to central monitoring station

---

## SDO 206

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Mortise Lock

### Operation At All Times

- Outside lever always rigid
- Outside card reader releases electric strike or outside combination lock retracts latchbolt
- Inside lever retracts latchbolt at all times
- Door monitor alarmed to central monitoring station

---

### SDO 207

#### Hardware Devices

- Closer
- Continuous Hinge or Pivots
- Door Contact
- Exit Device
- Flush Bolts
- Mortise Lock

#### Normal Daytime Operation

- Free operation from either side

#### After Hours Operation

- Outside lever always rigid
- Exit device releases latchbolts from interior
- Door monitor alarmed to central monitoring station

---

### SDO 208

#### Hardware Devices

- Closer
- Continuous Hinge
- Door Contact
- Flush Bolts
- Mortise Lock

#### Operation At All Times

- Outside lever always rigid
- Inside lever retracts latchbolt at all times
- Door monitor alarmed to central monitoring station

---

### SDO 209

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Mortise Lock

#### Normal Daytime Operation

- Outside lever always rigid
- Card reader releases electric strike
- Inside lever retracts latchbolt

## After Hours Operation

- Outside lever always rigid
- Card reader releases electric strike from outside
- Inside lever retracts latchbolt
- Door monitor alarmed to central monitoring station

---

## SDO 210

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Hold-open Alarm
- Intercom
- Mortise Lock

### Operation At All Times

- Outside and inside levers rigid at all times
- Card reader with biometric or PIN identification retracts electric strike from either side
- Door monitor alarmed to central monitoring station

---

## SDO 211

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Hold-open Alarm
- Intercom
- Mortise Lock

### Operation At All Times

- Outside and inside levers rigid at all times
- Card reader with biometric or PIN identification retracts electric strike from either side
- Door monitor alarmed to central monitoring station

---

### SDO 212

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Hold-open Alarm
- Mortise Lock

#### Operation At All Times

- Outside and inside levers rigid at all times
- Card reader or remote release retracts electric strike from either side
- Door monitor alarmed to pharmacy and central monitoring station

---

### SDO 213

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Intercom
- Mortise Lock

#### Operation At All Times

- Outside lever always rigid
- Card reader or remote switch releases electric strike
- Inside lever retracts latchbolt at all times
- Door monitor alarmed to central monitoring station

---

### SDO 214

#### Hardware Devices

- Closer
- Continuous Hinge
- Flush Bolts
- Mortise Lock

#### Operation At All Times

- Outside lever always rigid
- Latchbolt released from outside by combination lock
- Inside lever retracts latchbolt at all times

---

## SDO 215

### Hardware Devices

- Closer
- Continuous Hinge
- Door Contact
- Flush Bolts
- Mortise Lock

### Operation At All Times

- Outside lever always rigid
- Latchbolt released from outside by combination lock
- Inside lever retracts latchbolt at all times

---

## SDO 216

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Intercom
- Mortise Lock

### Operation At All Times

- Outside lever always rigid
- Card reader with biometric or PIN identification retracts electric strike
- Inside lever retracts latchbolt at all times
- Door monitor alarmed to central monitoring station

---

## SDO 217

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Mortise Lock

### Operation At All Times

- Outside lever always rigid
- Card reader with biometric or PIN identification retracts electric strike
- Inside lever retracts latchbolt at all times
- Door monitor alarmed to central monitoring station

---

## SDO 218

### Hardware Devices

- Continuous Hinge
- Flush Bolts
- Mortise Lock

### Operation At All Times

- Outside lever always rigid
- Latchbolt released by key outside and lever inside

---

## SDO 219

### Hardware Devices

- |                    |                   |
|--------------------|-------------------|
| ■ Card Reader      | ■ Electric Strike |
| ■ Closer           | ■ Flush Bolts     |
| ■ Continuous Hinge | ■ Mortise Lock    |
| ■ Door Contact     |                   |

### Operation At All Times

- Outside lever rigid at all times
- Card reader releases electric strike from outside
- Inside lever retracts latchbolt at all times
- Door monitor alarmed to central monitoring station

---

## SDO 220

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Mortise Lock

### Operation At All Times

- Outside lever rigid at all times
- Card reader releases electric strike from outside
- Inside lever rigid at all times
- Card reader releases electric strike from inside
- Door monitor alarmed to central monitoring station

---

## SDO 221

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Deadbolt
- Door Contact
- Electric Strike
- Magnetic Lock
- Mortise Lock

### Operation At All Times

- Outside lever rigid at all times
- Card reader with biometric or PIN identification releases electric strike and magnetic lock from outside
- Inside lever rigid at all times
- Card reader with biometric or PIN identification releases electric strike and magnetic lock from inside
- Door monitor alarmed to central monitoring station



---

### SDO 222

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Intercom
- Magnetic Lock
- Mortise Lock

#### Operation At All Times

- Outside lever always rigid
- Card reader with biometric or PIN identification releases electric strike or magnetic lock
- Inside lever retracts latchbolt at all times or request to exit button releases magnetic lock
- Door monitor alarmed to central monitoring station

---

### SDO 223

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Mortise Lock

#### Operation At All Times

- Outside and inside levers rigid at all times
- Card reader with biometric or PIN identification releases electric strike on either side
- Door monitor alarmed to central monitoring station

---

### SDO 224

#### Hardware Devices

- Closer
- Continuous Hinge
- Mortise Lock

## Operation At All Times

- Outside lever always rigid
- Key in outside lever retracts latchbolt
- Inside lever retracts latchbolt at all times
- Door monitor alarmed to central monitoring station

---

## SDO 225

### Hardware Devices

- Card Reader
- Door Contact

### Operation At All Times

- Card reader permits elevator door to open on restricted access floors
- Door monitor alarmed to central monitoring station

---

## SDO 226

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Exit Device

### Operation At All Times

- Outside lever (stair side) always rigid
- Card reader releases electric strike
- Delayed action and alarmed operation from inside (occupied side) when door is a means of egress; card reader for egress when door is not a required means of egress
- Door monitor alarmed to central monitoring station

---

### SDO 227

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Exit Device
- Flush Bolts
- Intercom
- Mortise Lock

#### Operation At All Times

- Outside lever always rigid
- Card reader or remote switch releases electric strike
- Inside lever retracts latchbolt at all times
- Door monitor alarmed to central monitoring station

---

### SDO 228

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Mortise Lock

#### Operation At All Times

- Outside lever always rigid
- Card reader releases electric strike or combination lock retracts latchbolt
- Inside lever retracts latchbolt at all times
- Door monitor alarmed to central monitoring station

---

## SDO 229

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Intercom
- Mortise Lock

### Operation At All Times

- Outside lever always rigid
- Card reader or remote switch releases electric strike from outside
- Inside lever always rigid
- Card reader releases electric strike from inside
- Door monitor alarmed to central monitoring station

---

## SDO 230

### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Intercom
- Magnetic Lock
- Mortise Lock

### Operation At All Times

- Outside lever always rigid
- Card reader or remote switch releases electric strike or magnetic lock from outside
- Inside lever always rigid
- Card reader or fire alarm releases electric strike or magnetic lock from inside
- Door monitor alarmed to central monitoring station

---

### SDO 231

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Hold-open Alarm
- Intercom
- Magnetic Lock
- Mortise Lock

#### Operation At All Times

- Outside and inside levers always free (passage function for latching requirements only)
- Card reader or remote switch at nurses' station releases magnetic lock
- Fire alarm releases magnetic lock
- Door monitor alarmed at nurses' station

---

### SDO 232

#### Hardware Devices

- Closer
- Continuous Hinge
- Door Contact
- Exit Device
- Magnetic Lock

#### Operation At All Times

- No hardware on outside
- Magnetic lock released by remote switch at nurses' station or by fire alarm
- Door monitor alarmed at nurses' station

---

### SDO 233

#### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Intercom
- Magnetic Lock
- Mortise Lock

## Operation At All Times

- Outside lever rigid at all times
- Card reader with biometric or PIN identification or remote switch release electric strike and magnetic lock from outside
- Card reader, remote release, or request to exit button release electric strike and magnetic lock from inside
- Door monitor alarmed to COOP and central monitoring station

---

## SDO 234

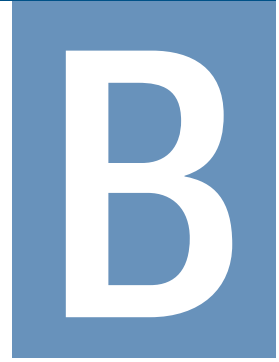
### Hardware Devices

- Card Reader
- Closer
- Continuous Hinge
- Door Contact
- Electric Strike
- Flush Bolts
- Mortise Lock

### Operation At All Times

- Outside lever rigid at all times
- Card reader on outside releases electric strike or combination lock on outside retracts latchbolt
- Inside lever retracts latchbolt at all times
- Door monitor alarmed at central monitoring station

# Security System Application Matrix







BUILDING EXTERIOR

Area of Coverage	Fixed Camera	Pan/Tilt/Zoom <sup>1</sup>	Controller	Monitor <sup>2</sup>	Recording Device	Matrix Switcher	Motion Det.	Glass Break	Door Contact <sup>3</sup>	Card Reader	Biometrics <sup>4</sup>	Intercom	Duress/Panic Alarm	Emer. Phone/Call Box	Optional <sup>5</sup>				
															X-Ray Mach.	WTMD	HHMD	Itemizer	
															DSS				
CCTV							IDS			PACS		DSPI			DSS				
Access Roadways / Vehicle Gates	X	X								X		X							
Air Intake Areas	X						X		X										
ATM Areas	X																		
Cemetery																			
Administration Building							X	X	X				X						
Storage and Supply Buildings							X	X	X										
Common Ground / Pathways / Sidewalks	X	X												X					
Credit Union	X						X	X	X				X						
Child Care Center	X	X	X	X	X	X	X	X	X	X		X	X	X					
Drop Off / Pick Up Points	X													X					
Elevator Machinery Room	X						X		X	X		X							
Emergency Exit / Perimeter Doors	X	X					X		X										
Emergency Room / Facility Entrance	X	X					X	X	X	X		X							
Employee Entrance / Secondary Doors	X	X					X		X	X		X							
Exterior Windows (AC Unit Inserts)		X					X	X											
Exterior Windows (Ground Accessible)		X					X	X											
Hazardous Material Storage / Enclosures																			
Bio Hazard Waste	X	X					X	X	X	X									
Fuel	X	X					X	X	X										
Liquid Oxygen	X	X					X	X	X										
Medical Gas	X	X					X	X	X	X									
Propane	X	X					X	X	X										
Radioactive Materials Storage	X	X					X	X	X	X			X						
Select Agents Area	X	X					X	X	X	X			X						
Laundry Plant	X	X					X	X	X	X		X	X						
Loading Docks	X			X					X	X		X							
Main Entrance	X	X						X	X			X							
Maintenance Shop	X	X					X	X	X				X						
Nursing Home	X	X	X	X	X	X	X	X	X	X		X	X	X					
Parking Garages	X	X								X		X		X					
Parking Garages (Underground)	X	X								X		X		X					
Parking Lot Areas (Employees)	X	X								X		X		X					
Parking Lot Areas (Open / Visitor / Vendor)	X	X												X					
Pedestrian Access Point	X	X							X										

BUILDING EXTERIOR (continued)

Area of Coverage	Fixed Camera	Pan/Tilt/Zoom <sup>1</sup>	Controller	Monitor <sup>2</sup>	Recording Device	Matrix Switcher	Motion Det.	Glass Break	Door Contact <sup>3</sup>	Card Reader	Biometrics <sup>4</sup>	Intercom	Duress/Panic Alarm	Emer. Phone/Call Box	Optional <sup>5</sup>			
															X-Ray Mach.	WTMD	HHMD	Itemizer
															CCTV			
Perimeter Fence / Wall / Barrier	X	X					X											
Rooftop Access	X	X					X		X	X		X						
Security Guard House / Vehicle Screening Area	X	X		X			X	X				X	X					
Service Entrance	X	X							X	X		X						
Service Vehicle Roadway Gates	X	X								X		X						
Service Yard	X	X												X				
Shipping / Receiving Area	X	X					X	X	X	X		X			X			X
Loading Dock Bay Areas	X	X					X	X	X	X		X	X		X			X
Mailroom	X	X					X	X	X	X		X	X		X			X
UPS Battery / Generator Area	X	X					X	X	X	X								
Utility Buildings																		
Electrical	X	X					X	X	X	X								
Energy Center	X	X					X	X	X	X		X	X					
Mechanical	X	X					X	X	X	X								
Signal	X	X					X	X	X	X								
Telecommunications	X	X					X	X	X	X								
Water Storage / Processing	X	X					X	X	X	X								
Utility Service Tunnel Entrance / Exit	X	X					X		X	X		X		X				
VA Benefits / Regional Office Building	X	X		X			X	X	X	X		X	X		X	X	X	X
Vehicle Entrances / Site Access (Open Access)	X	X												X				
Warehouse Building	X	X		X			X	X	X	X		X	X		X	X	X	X

Footnotes:

1. P/T/Z cameras shall be deployed primarily to monitor site and building exterior areas. They will supplement the use of fixed cameras if they can be programmed to monitor multiple areas with minimal human interface required.
2. A dedicated CCTV camera monitor may be required to provide staff with the ability to monitor access to these controlled areas.
3. Door contacts shall be installed as a back-up to the use of security motion detection devices.
4. Biometric security devices shall only be used as a secondary means of providing access control. Card readers will be the primary security access device used.
5. The use of DSS equipment is indicated as an optional means to screen persons, items, and materials carried into or delivered to a facility. Each facility shall be addressed on a case-by-case basis as to DSS equipment requirements.

BUILDING INTERIOR

Area of Coverage	Fixed Camera	Pan/Tilt/Zoom <sup>1</sup>	Controller	Monitor <sup>2</sup>	Recording Device	Matrix Switcher	Motion Det.	Glass Break	Door Contact <sup>3</sup>	Card Reader	Biometrics <sup>4</sup>	Intercom	Duress/Panic Alarm	Emer. Phone/Call Box	Optional <sup>5</sup>			
															X-Ray Mach.	WTMD	HHMD	Itemizer
															DSS			
CCTV							IDS			PACS		DSPI			DSS			
Agent Cashier	X						X	X	X	X		X	X					
Animal Research / Vivarium	X		X	X		X	X	X	X	X	X	X	X					
ATM	X						X	X	X	X								
BSL Labs	X		X	X	X	X	X	X	X	X	X	X	X					
Building Corridors (Restricted / Controlled)	X	X					X	X		X		X						
Building Lobby / Reception Area	X	X						X							X	X	X	X
Cafeteria	X						X	X	X	X			X					
Canteen Office							X	X	X				X					
Canteen Retail Store	X						X	X	X				X					
Canteen Storage	X						X	X	X									
Child Care Center	X	X	X	X	X	X	X	X	X	X		X	X	X				
COOP Room / Facility	X	X	X	X	X	X	X	X	X	X	X	X						
Credit Union	X						X	X	X				X					
Domiciliary	X	X		X			X	X	X	X		X	X	X				
Elevator Equipment Room	X						X		X	X			X					
Elevator Lobby / Floor Access Areas	X						X	X		X		X						
Emergency Exit / Egress Doors	X	X					X		X									
Emergency (Urgent Care) Area										X		X			X	X	X	X
Nursing Station	X							X					X					
Waiting Room	X							X										
Fire Pump Room	X						X		X	X								
General Waiting Areas	X							X										
Hazardous Material Storage / Enclosure																		
Bio Hazard Waste	X	X					X	X	X	X								
Fuel	X	X					X	X	X									
Liquid Oxygen	X	X					X	X	X									

BUILDING INTERIOR (continued)

Area of Coverage	Fixed Camera	Pan/Tilt/Zoom <sup>1</sup>	Controller	Monitor <sup>2</sup>	Recording Device	Matrix Switcher	Motion Det.	Glass Break	Door Contact <sup>3</sup>	Card Reader	Biometrics <sup>4</sup>	Intercom	Duress/Panic Alarm	Emer. Phone/Call Box	Optional <sup>5</sup>			
															X-Ray Mach.	WTMD	HHMD	Itemizer
															CCTV			
Medical Gas	X	X					X	X	X	X								
Propane	X	X					X	X	X									
Radioactive Materials Storage	X						X	X	X	X			X					
Select Agents Area	X						X	X	X	X			X					
Interstitial Space (Controlled Access)	X	X					X	X	X	X								
Information Resource Management (IRM)	X		X	X		X	X	X	X	X	X	X	X					
IRM Data Closet	X	X					X	X	X	X								
Laboratory (Clinical)	X	X	X	X		X	X	X	X	X		X	X					
Laundry Plant	X	X					X	X	X	X		X	X					
Library / Research	X						X	X	X	X			X					
Linen Supply / Storage	X						X	X	X									
Maintenance Shop	X	X					X	X	X				X					
Medical Directors Office	X	X					X	X	X	X		X	X					
Medical Gas Bulk Storage	X	X					X	X	X	X								
Medical Media Equipment Storage	X	X					X	X	X	X								
Medical Records Storage	X	X					X	X	X	X								
Nuclear Medicine Areas	X						X	X	X	X		X	X					
Nursing Home	X	X	X	X	X	X	X	X	X	X		X	X	X				
Operator Switchboard	X							X	X	X		X	X					
Pedestrian Corridor	X	X					X							X				
Pedestrian Tunnel/ Pathways	X	X					X							X				
Pedestrian Skywalk	X	X					X							X				
Pharmacy																		
Control Substance Room	X						X	X	X	X		X	X					
Dispensing Room	X						X	X	X	X		X	X					
Drug Cache	X						X	X	X	X		X						

BUILDING INTERIOR (continued)

Area of Coverage	Fixed Camera	Pan/Tilt/Zoom <sup>1</sup>	Controller	Monitor <sup>2</sup>	Recording Device	Matrix Switcher	Motion Det.	Glass Break	Door Contact <sup>3</sup>	Card Reader	Biometrics <sup>4</sup>	Intercom	Duress/Panic Alarm	Emer. Phone/Call Box	Optional <sup>5</sup>			
															X-Ray Mach.	WTMD	HHMD	Itemizer
															CCTV			
Drug Storage Room	X						X	X	X	X		X						
Inpatient / Outpatient Service Windows	X						X	X					X					
Manufacturing Area	X						X	X	X	X			X					
Primary Inventory (Medical Supplies)	X						X	X	X	X								
Psychiatric Units	X		X	X				X	X	X		X	X					
Research Clinical Labs	X		X	X			X	X	X	X		X	X					
Research Library	X		X	X			X	X	X	X		X	X					
Security Control Center (SCC)	X		X	X	X	X		X	X	X		X	X					
Security System Equipment Closets	X						X	X	X	X								
Shipping / Receiving Area																		
Loading Dock Bay Areas	X	X					X	X	X	X		X	X		X			X
Mailroom	X						X	X	X	X			X		X			X
Stairwells	X						X	X	X	X		X		X				
Telecommunication / Data Equipment Areas																		
Telephone Data Closet	X						X	X	X	X		X						
Main Computer Room	X						X	X	X	X		X						
Main Telephone Room	X						X	X	X	X		X						
Travel Office	X						X	X	X	X			X					
Utility Rooms																		
Battery-UPS-Generator Area	X						X	X	X	X		X						
Electrical	X						X	X	X	X		X						
Mechanical	X						X	X	X	X		X						
Signal	X						X	X	X	X		X						
Telecommunications	X						X	X	X	X		X						
Utility Tunnel Pathway	X	X					X		X	X				X				

BUILDING INTERIOR (continued)

Area of Coverage	Fixed Camera	Pan/Tilt/Zoom <sup>1</sup>	Controller	Monitor <sup>2</sup>	Recording Device	Matrix Switcher	Motion Det.	Glass Break	Door Contact <sup>3</sup>	Card Reader	Biometrics <sup>4</sup>	Intercom	Duress/Panic Alarm	Emer. Phone/Call Box	Optional <sup>5</sup>				
															X-Ray Mach.	WTMD	HHMD	Itemizer	
															CCTV				IDS
VA Benefits / Regional Office Building	X	X					X	X	X	X		X	X		X	X	X	X	
VA Police Office																			
Holding Area	X		X	X	X			X	X	X		X							
Processing Room							X	X	X	X									
Property / Evidence Room	X						X	X	X	X									
Weapon Storage/armory	X		X	X	X		X	X	X	X									
Ward / Medical Treatment Room	X						X	X	X	X		X	X						

Footnotes:

1. P/T/Z cameras shall be deployed primarily to monitor site and building exterior areas. They will supplement the use of fixed cameras if they can be programmed to monitor multiple areas with minimal human interface required.
2. A dedicated CCTV camera monitor may be required to provide staff with the ability to monitor access to these controlled areas.
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