2021 *Virtual* JOINT ENGINEER TRAINING CONFERENCE & EXPO

MAY
17-21

Society of SAME American Military Engineers

Physical Security for Federal Facilities: Minimizing Impacts to Construction Cost

Moderator:

- Eric Turner, Senior Program Manager, Oneida ESC Group

Speaker:

- Stephen Morgan, Physical Security Professional, Innovative Engineering Inc.

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SPEAKER

Stephen Morgan, PSP
Innovative Engineering Inc.

Fun Facts

- Avid football and baseball fan
- When not working I enjoy fishing and spending time with my family
- I have a 15-year career providing physical security designs and 19 years as a structural engineer

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Learning Objectives

- Learn and Understand
  - Learn the basis for physical security design
  - Understand the risk assessment process and how to develop design criteria
  - Become familiar with the three major security criteria standards and how they work
  - Obtain suggestions on how to minimize the impact on the cost of new and renovated construction

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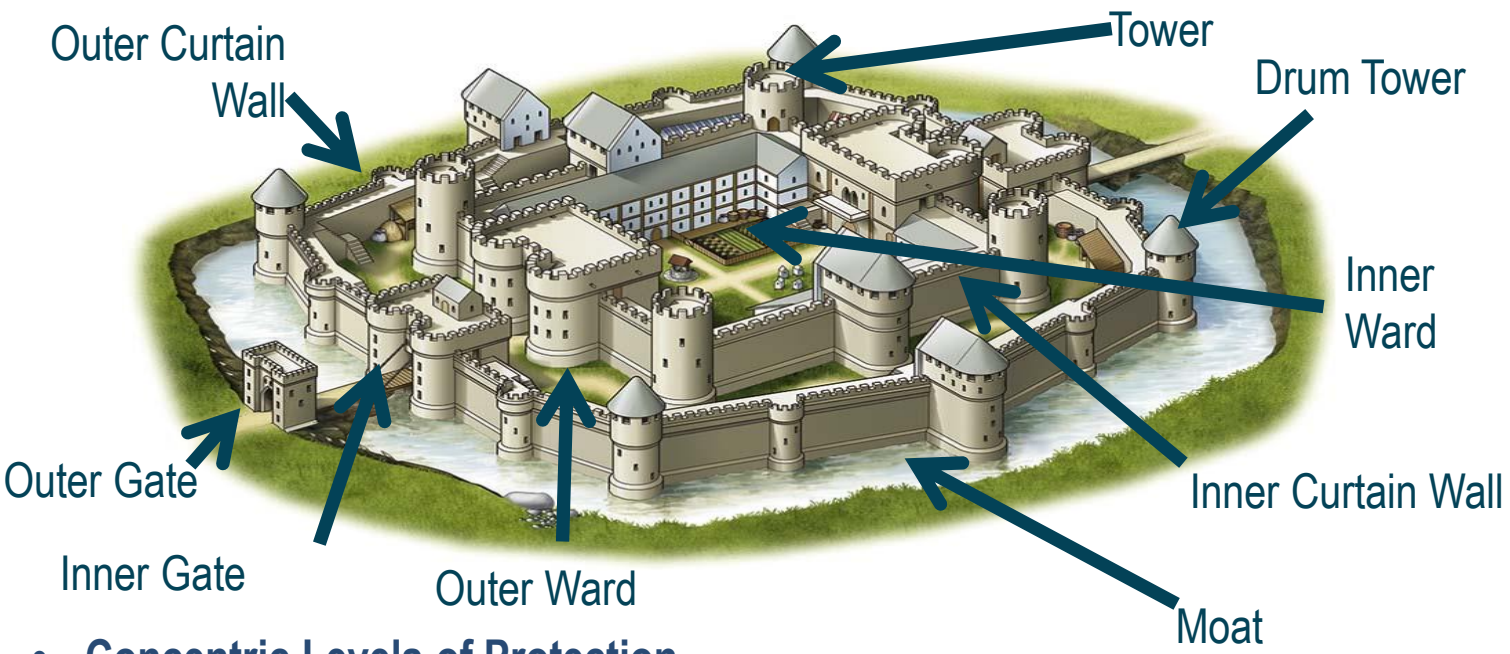
Physical Security Basics



- **Concentric Levels of Protection**
  - Progressively reduces the threat as the distance to the asset decreases
  - All of the individual protections form a Protective System

Protective System

Protective System Functions

Detect

- Electronic Security System
  - -Intrusion detection
  - -Alarm communication
  - -Alarm assessment
  - -Access control
- Security Forces
- Security Lighting
- Facility Personnel
- Responsible Citizens

Delay or Defeat

- Barriers
  - - Fences
  - - Facility roof, walls, and floors
  - - Doors
  - - Windows
  - - Locks
- Distance
- Vegetation
- Procedures

Respond

- Interruption
  - -Communication to response force
  - -Deployment of response force
  - -Neutralization

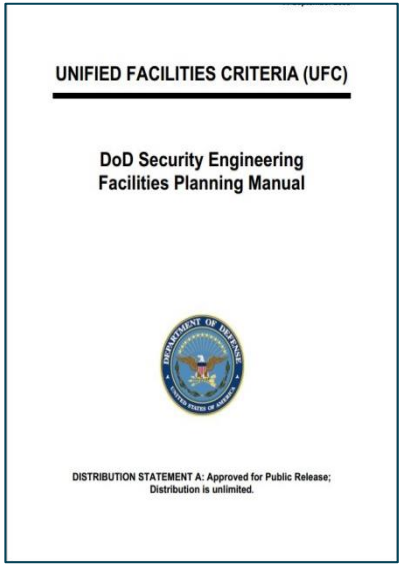
Development of the Protective System

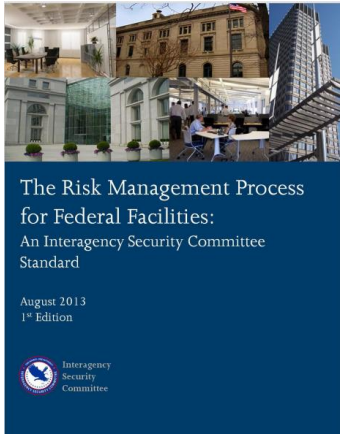
Prescriptive Criteria

Performance Criteria

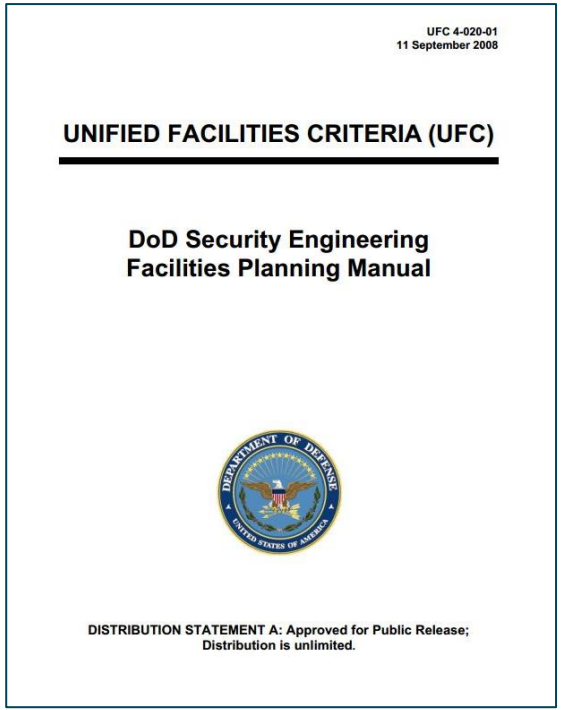
Risk Assessment Standards

- Prominent Standards
  - ISC, The Risk Management Process for Federal Facilities
  - DoD Security Engineering Facilities Planning Manual, UFC-4-020-01
- Other Standards
  - TSA, Recommended Security Guidelines for Airport Planning, Design and Construction
- Results in Physical Security Design Criteria for a given project





Risk Assessment Standards


UFC 4-020-01
11 September 2008

UNIFIED FACILITIES CRITERIA (UFC)

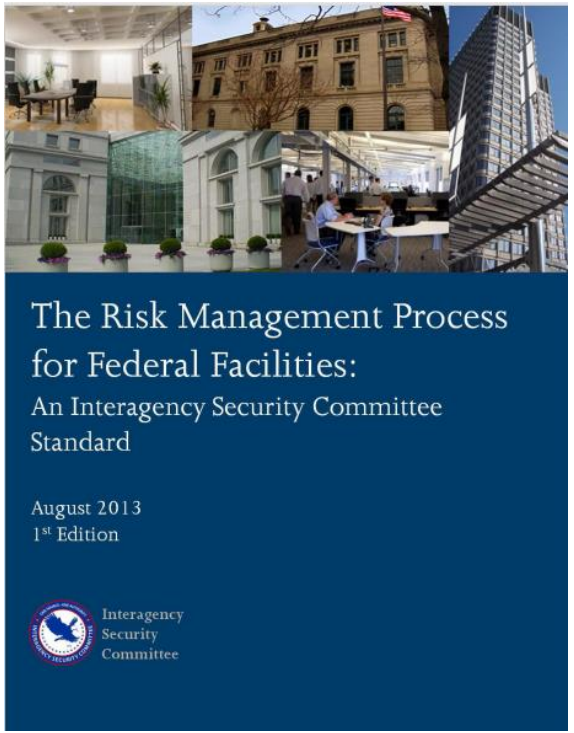
DoD Security Engineering
Facilities Planning Manual

DISTRIBUTION STATEMENT A: Approved for Public Release;
Distribution is unlimited.

- 18 Asset Categories
- 10 Aggressor Types
- 13 Tactics
- 5 Levels of Protection

Risk Assessment Standards

- 5 Levels of Protection
- 33 Undesirable Events
- 93 Countermeasures

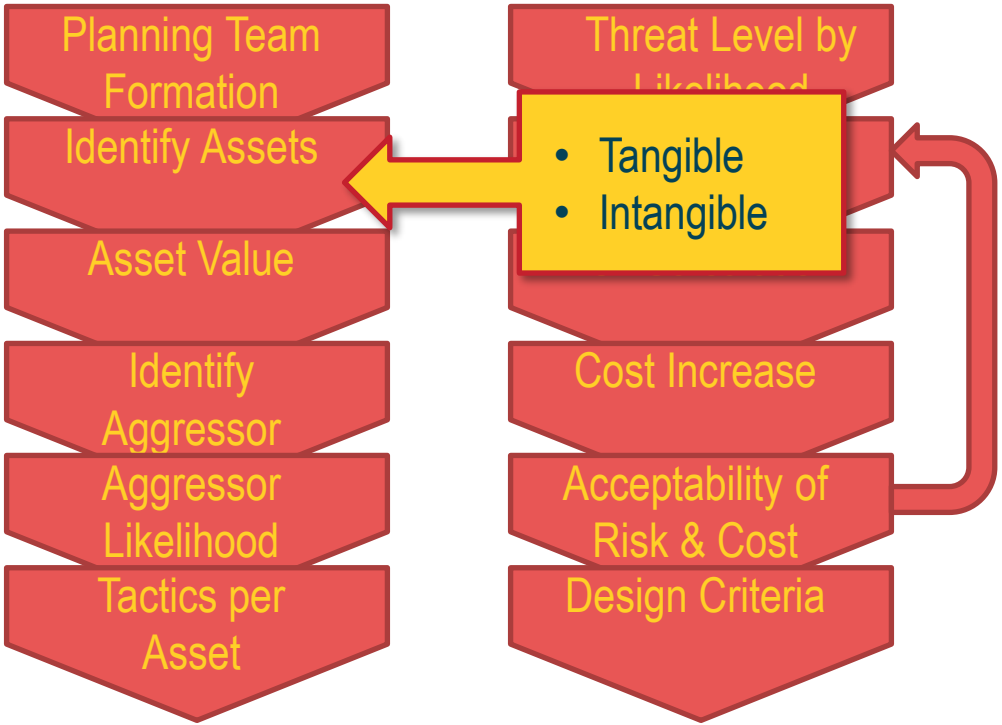


Risk Assessment Basics

- Asset
  - Tangible and Intangible
  - Supports building function
  - Degree of debilitating impact if damaged or destroyed.
- Threat
  - Aggressor
    - Existence
    - Capability
    - History
    - Intentions
    - Targeting
  - Weapons, tools and tactics
- Vulnerable
  - Weaknesses that can be exploited

Risk Assessment Basics

Risk Assessment Basics



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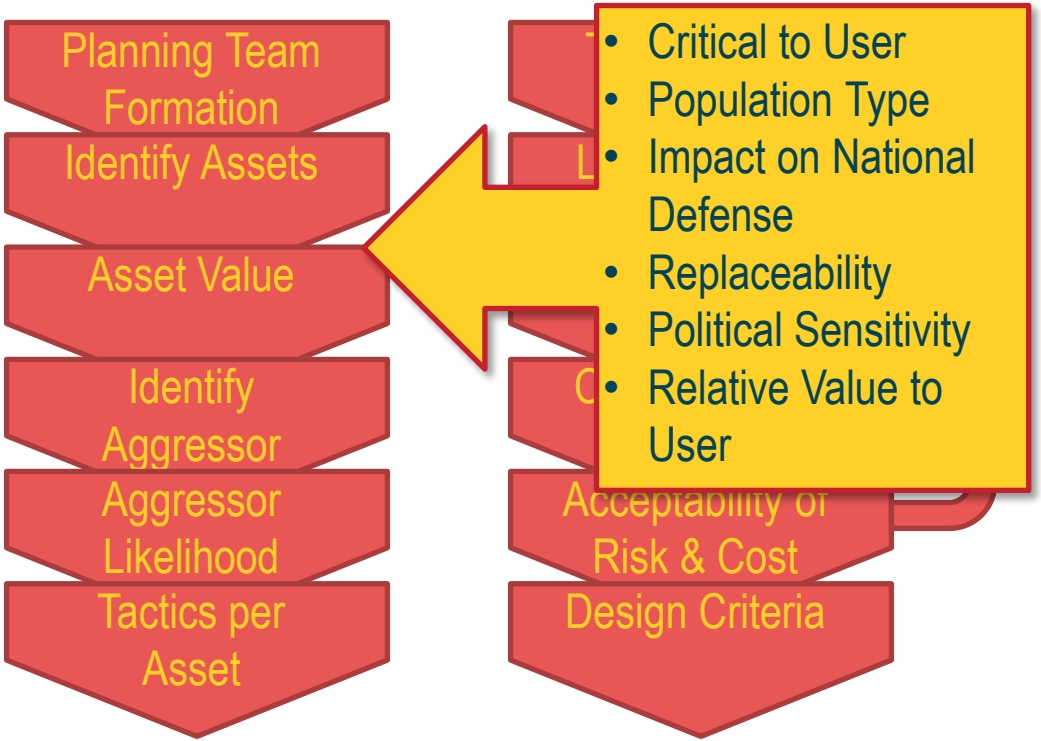

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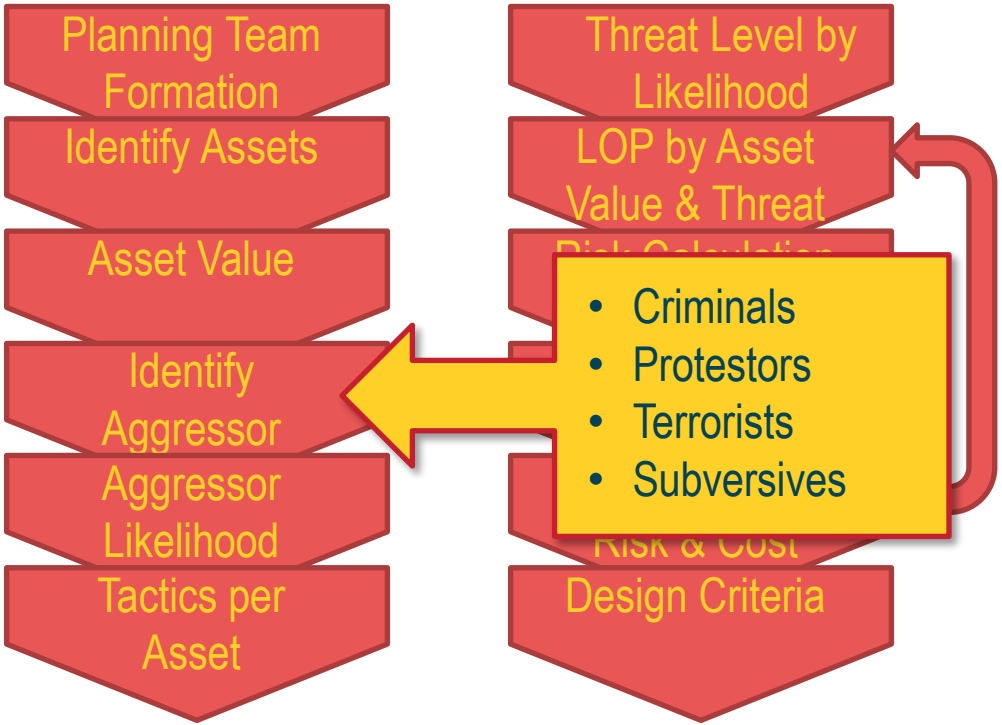

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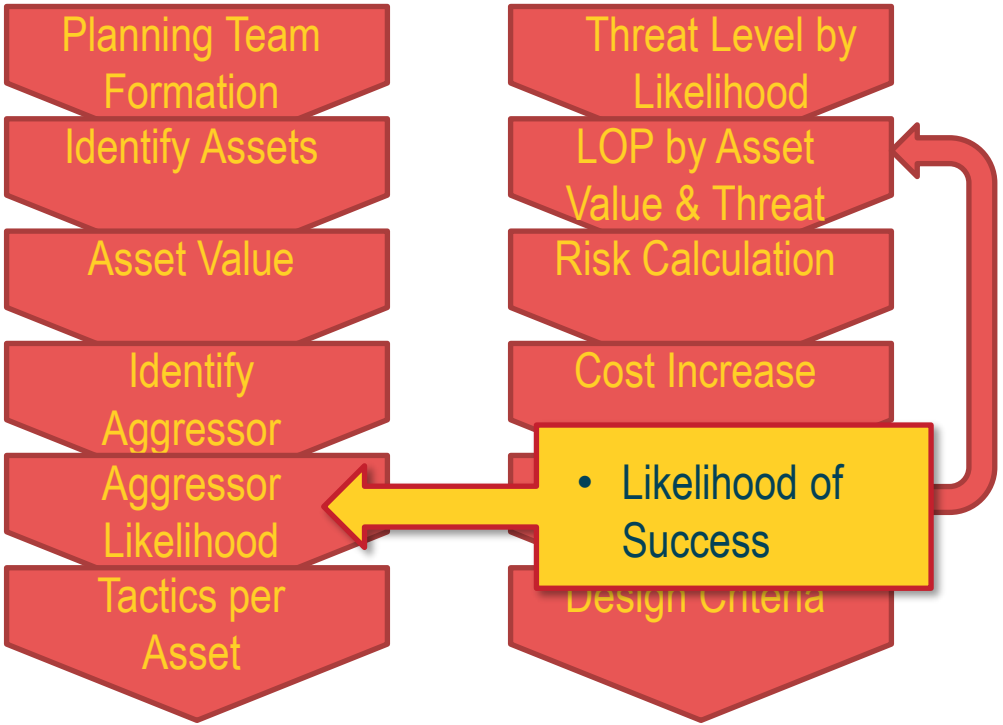

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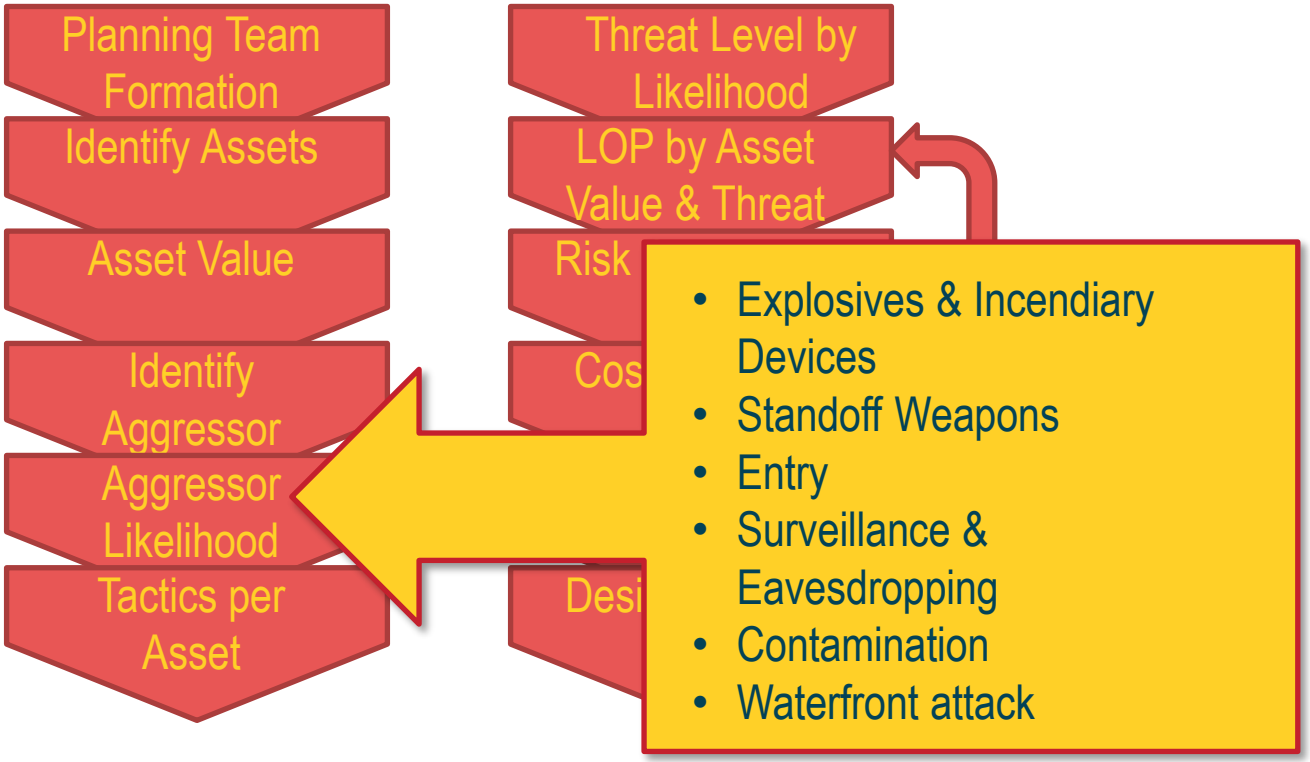

Risk Assessment Basics

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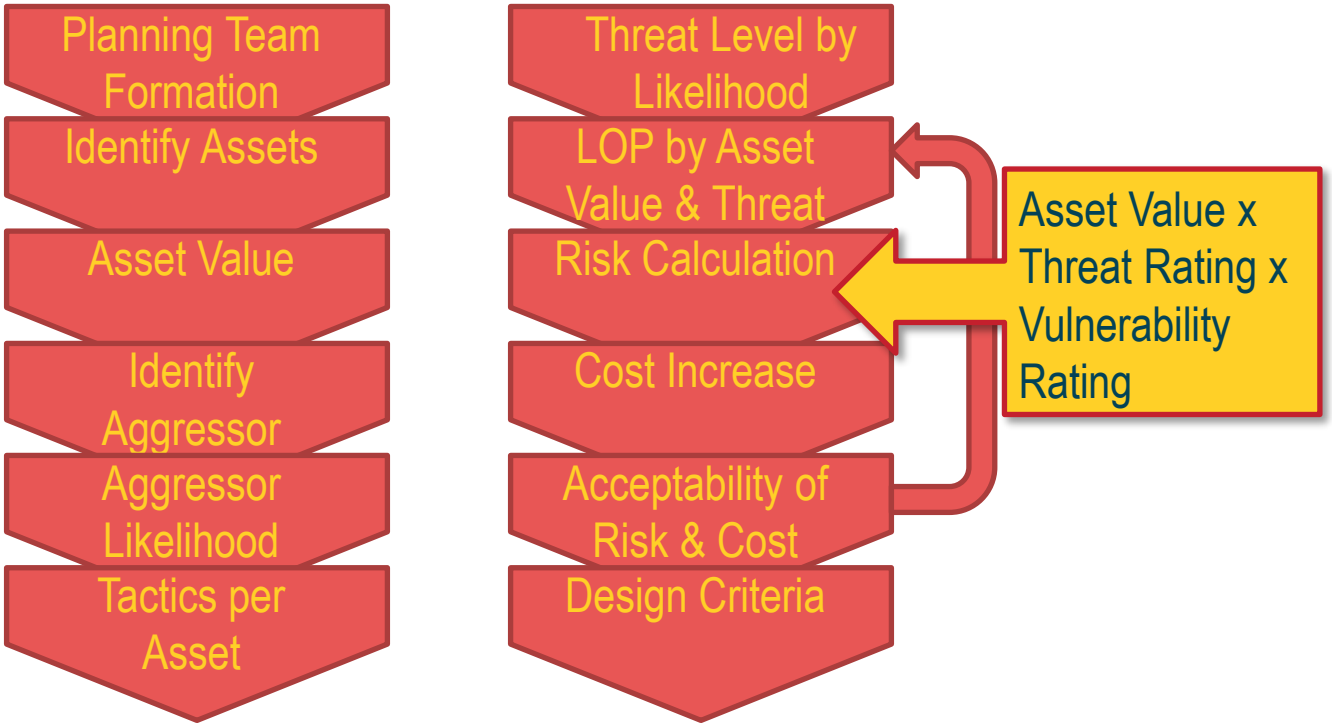

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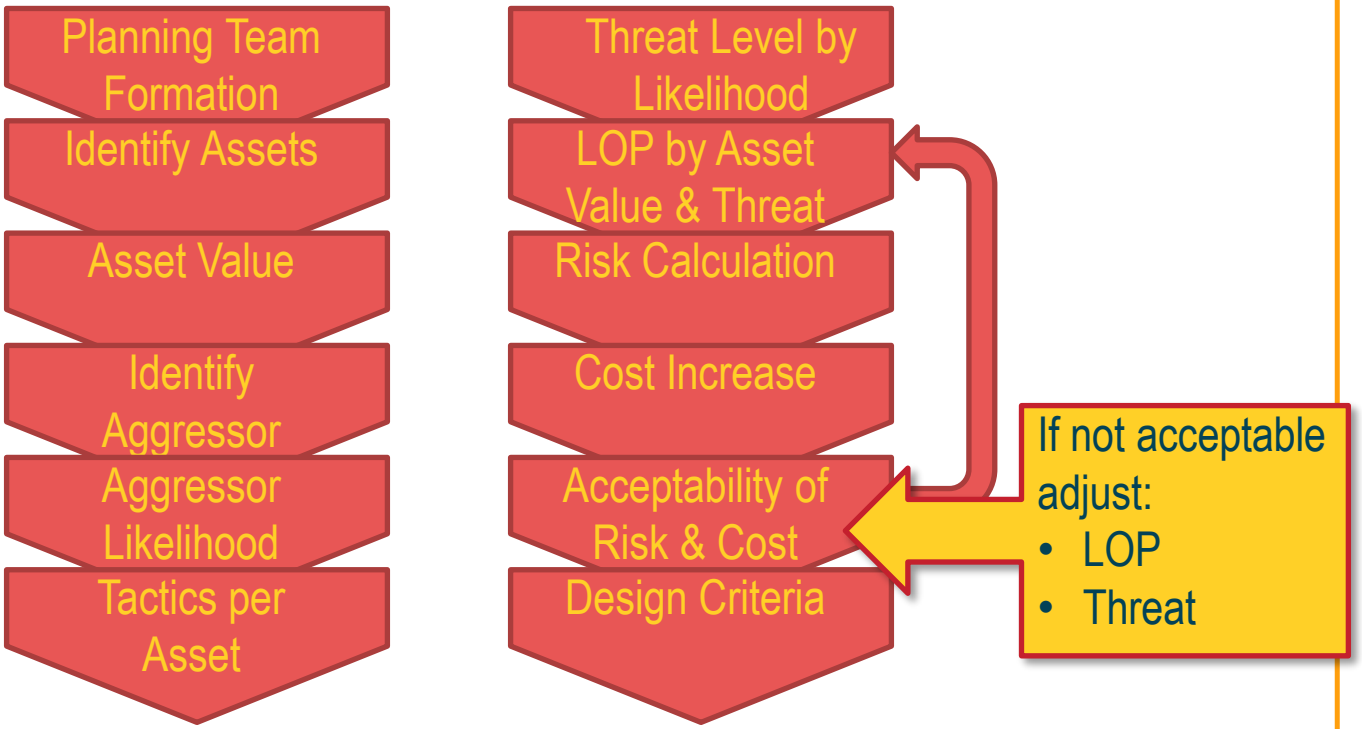
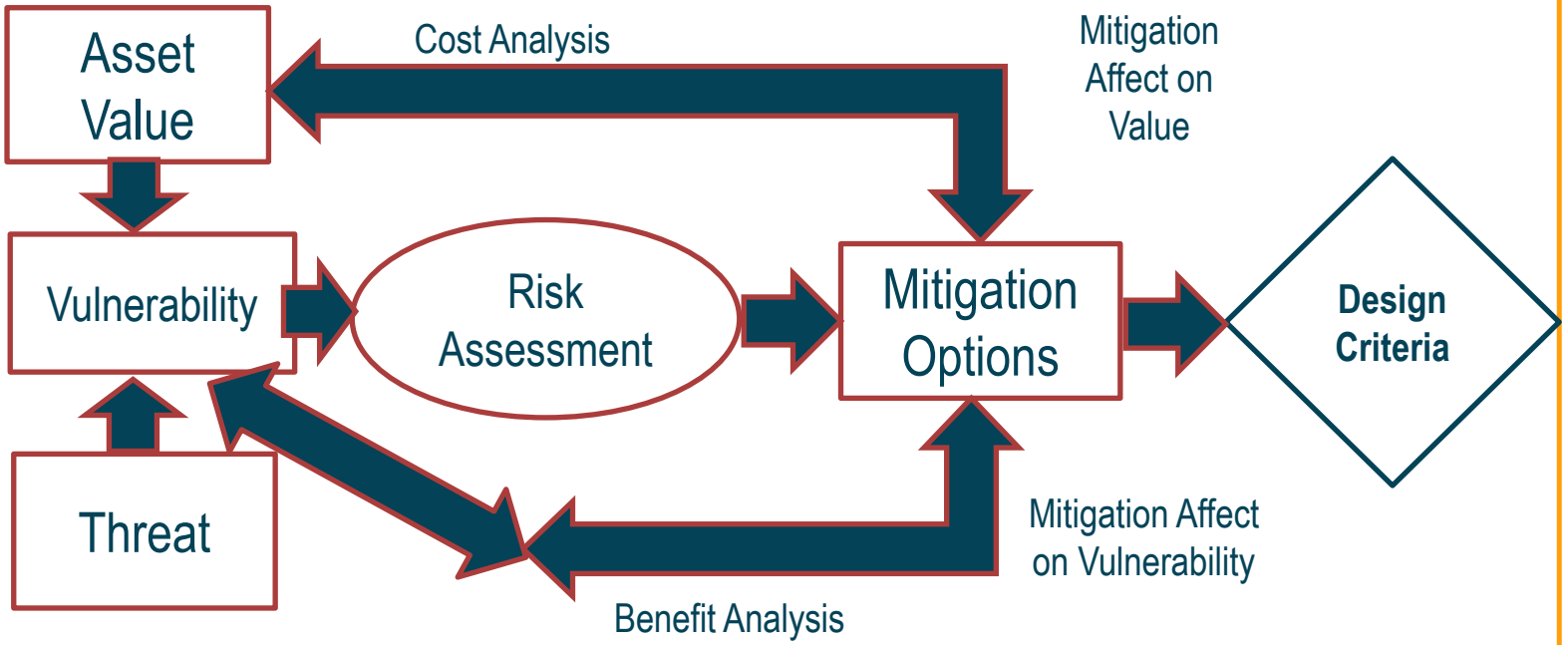


Risk Assessment Process

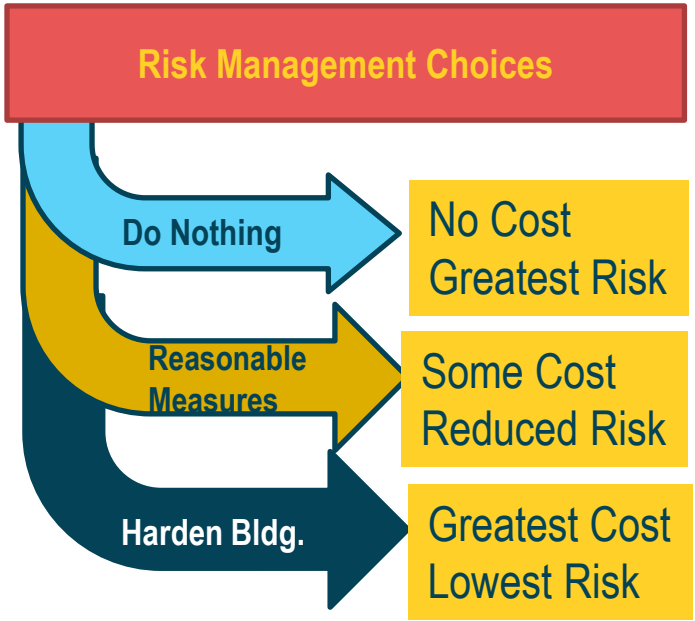


Risk = Asset Value x Threat Rating x Vulnerability Rating

Source: FEMA 426

Risk Assessment Process

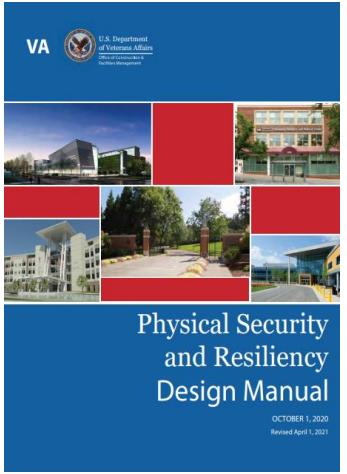
- Prioritize Risk = Asset Value x Threat x Vulnerability
- Identify Mitigation Options
  - Reduce value, threat, vulnerability
- Estimate Cost
- Cost-Benefit Analysis
  - By committee
    - Protective Design Consultant
    - Building Owner
    - Tenant
    - Security
    - Site management
    - Key Function Representatives
    - Others
- Codify Design Criteria

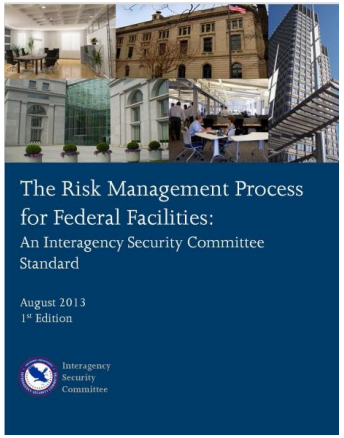


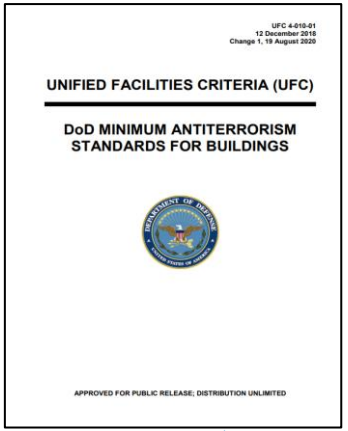
Source: FEMA 426

Physical Security Criteria

- Prominent Design Criteria
  - GSA Interagency Security Committee (ISC) Physical Security Criteria. (FOUO)
  - DoD Minimum Antiterrorism Standards for Buildings, UFC 4-010-01
  - VA Physical Security and Resiliency Design Manual (PSRDM)
- UFC 4-010-01 and VA PSRDM are both minimum standards deemed acceptable by Risk Assessments previously discussed. There are instances particularly within DoD where risk assessments determined threats beyond the scope of UFC 4-010-01







Physical Security Criteria Commonalities

- All three criterion address classifying the importance of the facility as is relates to the mission criticality
- Mission criticality defines the importance the facility has to continuing the agency mission and what level of protection is needed to achieve the mission.
- UFC: Classifies buildings based on the number of “inhabitants” routinely occupying a space. These include uninhabited, inhabited, low occupancy housing and billeting facilities. With uninhabited and low occupancy housing being the lowest level of protection and billeting being the highest. The current version of the minimum standards UFC 4-010-01 has somewhat removed this from the standards but when specific threats are identified these classifications are still applicable

Physical Security Criteria Commonalities

- VA PSRDM: Classifies facilities using the Mission Critical Protected, Life Safety with Mission Critical Utilities/Systems and Life Safety Protected. Mission Critical Protected being the highest level and Life Safety Protected Being the lowest

1.4 VA Facilities

1.4.1 Physical Security and Resiliency Designations for VA Facilities:

This section lists the VA facilities according to the following physical security and resiliency designations:

- MC Facilities
- LSP Facilities w/ MC Utilities/Systems Redundancies
- LSP Facilities
- Facilities w/ Varying Designations
- Partially Exempt Facilities

Physical Security Criteria Commonalities

- VA PSRDM: Classifies facilities using the Mission Critical Protected, Life Safety with Mission Critical Utilities/Systems and Life Safety Protected. Mission Critical Protected being the highest level and Life Safety Protected Being the lowest
- ISC: Classifies facilities using the Facility Security Level (FSL) terminology. FSL's from FSL I to FSL V with I being lowest level of protection to V being the highest

Value	Points	Criteria	Examples
		Houses personnel or specialized equipment necessary to detect or respond to unique public health incidents	Centers for Disease Control and Prevention
		Houses material or information that, if compromised, could cause a significant loss of life, including production quantities of chemicals, biohazards, explosives, weapons, etc.	U.S. Department of Energy research reactor facilities, explosives storage facilities
		COG facilities	Federal Emergency Management Agency Emergency Operations Center
High	3	Original, irreplaceable material or information central to the daily conduct of government	National Archives
		Designated as a shelter in the event of an emergency incident	Smithsonian museums
		Regional or headquarters policy and management oversight	GSA National Capitol Region Headquarters, Social Security Administration Headquarters, Census Bureau
		Biological/chemical/radiological/medical research or storage of research and development (de minimis) quantities of chemicals, biohazards, explosives, and similar items	Plum Island Animal Disease Research Center
		COOP facilities for department and agency headquarters	GSA Central Office COOP facility
		General criminal investigative work	Fraud, financial, non-terrorism-related crime
		Judicial processes	Federal courts
Medium	2	District or State-wide service or regulatory operations	Agriculture Food Safety and Inspection Services District Office
		COOP facilities for other than national headquarters	GSA Regional Office COOP site
Low	1	Administrative, direct service, or regulatory activities at a local level	Agricultural County Extension Office

Physical Security Criteria Commonalities

- All three criterion address facilities being new or existing and have requirements for each
- The ISC indirectly addresses existing facilities via use of the Risk Management process. However, the UFC and VA PSRDM are very specific to triggers that require existing construction be brought into compliance with current code requirements and or when existing construction does not have to be in compliance with current requirements

considered to meet the provisions of this standard /1/. European masonry walls that are within the range of parameters in Table C-5 and PDC Technical Report 10-01 may be considered to meet the requirements of this standard.

3-11 STANDARD 10. GLAZING.

Glazing that is in compliance with this standard is not required to be designed or constructed for blast resistance. It is only intended to minimize hazardous glazing fragments.

Apply the following prescriptive provisions for exterior glazing for new construction or existing buildings that are required to comply with these standards.

3-11.1 Glazing.

For glazing in exterior building elements such as storefronts, doors, windows, curtain walls, clerestories, and skylights provide no less than 1/4 in. (6 mm) nominal polycarbonate or laminated glass. The 1/4 in. (6 mm) laminated glass consists of two nominal 1/8 in. (3 mm) glass panes bonded together with a minimum of a 0.030 in. (0.75 mm) interlayer of a material \1\ that has typically been used in blast resistant window applications. For insulated glass units (IGU), use the polycarbonate or laminated glass for the innermost pane as a minimum.

For polycarbonate, provide a glazing frame bite of no less than 1.5 times the polycarbonate thickness. For laminated glass, the laminated pane shall be adhered to its supporting frame using structural silicone sealant or adhesive glazing tape. The structural silicone sealant bite shall be equal to the larger of 3/8-in. (10-mm) or the thickness of the laminated glass to which it adheres. The minimum thickness of the structural silicone bead shall be 3/16-in. (5-mm). The glazing tape bite shall be equal to two times the thickness of the laminated glass to which it adheres. The structural silicone bead or glazing tape shall be applied to both sides of single pane laminated glass but need only be applied to the inboard (protected) side of an IGU. /1/

Monolithic glass or monolithic acrylic used as a single pane or as the inner pane of a multi-pane system is not allowed for the purposes of complying with this standard. Spandrel glass when backed by a structural wall or spandrel beam, translucent fiberglass panels, other lightweight translucent plastics, and glass unit masonry are not required to comply with this standard. Spandrel glass that is open to occupied space must \1\ comply /1/ with this standard.

Physical Security Criteria Commonalities

- All three criterion address facilities being new or existing and have requirements for each
- The ISC indirectly addresses existing facilities via use of the Risk Management process. However, the UFC and VA PSRDM are very specific to triggers that require existing construction be brought into compliance with current code requirements and or when existing construction does not have to be in compliance with current requirements

PHYSICAL SECURITY & RESILIENCY DESIGN MANUAL — October 1, 2020 Revised 04-01-2021

6.3.1.6 Operable Windows: The use of operable windows for blast resistant design is discouraged; however, where operable windows are required, their performance must be demonstrated with acceptable explosive (or shock tube) test data, conducted in accordance with ASTM F1642, current edition, while in the open position. The tested assembly must be demonstrated to VA to be sufficiently similar in glazing layup, mullions, frames, connections and hardware to that being constructed for the project.

6.3.2 Alteration/Renovation of Existing Facilities — Fenestration

6.3.2.1 For renovations in which the glazing is not replaced, use a mechanically anchored or wet glazed attached minimum 7-mil thick anti-shatter film applied to the inside face of the glass (or equivalent) ; performance of the selected system must be demonstrated with glazing hazard calculations or blast test data, which must be of similar sized glass panels and blast load intensity, in accordance with ASTM F1642.

6.3.2.2 Glass replacement upgrades must comply with the requirements of 6.3.1.1 Glass and 6.3.1.2 Glazing.

6.3.2.3 Window replacement upgrades and "storm-window" upgrades interior to existing façade must comply with all the requirements of 6.3.1.1 Glass and 6.3.1.2 Glazing.

6.3.2.4 No upgrades to the frames, mullions, or connections are required for anti-shatter film applications, glass replacement projects, or window replacement upgrades.

Physical Security Criteria Commonalities

- All three criterion address physical security related to the main features of the facility including:
- Site Features
- Building Envelope and Structural System
- Building Systems
- Electronic Security

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Physical Security Criteria Commonalities

- Site Features
- All of the criterion address standoff distance from the building to parking and roads, vehicle barriers, perimeter fencing and lighting
- Building Envelope and Structural System
- All the criterion address blast design of the building envelope (walls, roofs, doors and fenestration), building entry layout, location of high-risk areas within a facility such as loading docks and progressive collapse mitigation.
- Building Systems
- All of the criterion address mechanical, electrical and plumbing system protection. Primarily focused on protection of critical infrastructure and the facility from chemical biological and radiological threats
- Electronic Security
- All of the criterion address access controls, intrusion detection, mass notification, video and electronic surveillance. Cyber is generally addressed in separate criteria documents

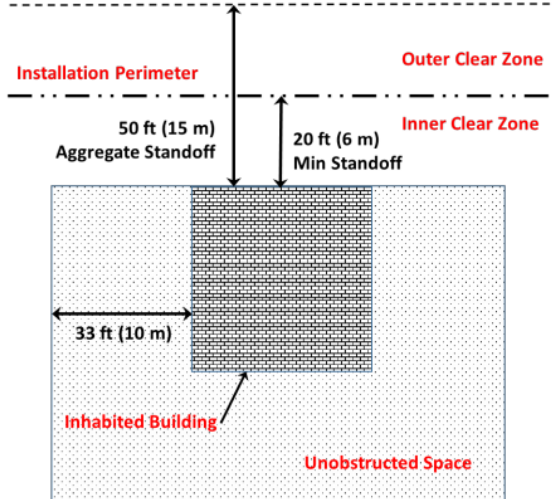
Physical Security Criteria Differences

- While there are a lot of commonalities to the 3 prominent criterion, they are all different.
- A good analogy is that the criteria are all like apples, but one is a Fuji, one is a Honeycrisp, and one is a Granny Smith. They look like an apple and taste like one but all slightly different.
- Knowing the differences in the criterion is a key to saving time and cost on a given project and is one of the top sources of problems on physical security projects.
- The majority of the A/E and vendor world is familiar with the UFC and ISC (GSA) requirements but frequently they all mixed together on VA projects.
- Major differences between the criterion include site standoff requirements, building envelope blast design requirements and building system redundancy requirements. There are a fair number of other differences, but these are items we see frequently misused.

Physical Security Criteria Differences

- Key Site design difference between the criterion is required standoff for new facilities. All have very similar means to control parking and road access for existing facilities.
- UFC 4-010-01 only measures standoff to installation perimeters. This was a major change from previous editions.
- VA PSRDM: 50 feet for Mission Critical Facilities and 25 feet for Life Safety Facilities. These distances are regardless of height and or areas of the facility that have more than the required standoff distances
- ISC: Determined by the security committee during the Risk Assessment Phase. There is no “set” standoff unless otherwise defined in a scope of work.

Figure 3-1 Installation Perimeter with Outer Clear Zone



PHYSICAL SECURITY & RESILIENCY DESIGN MANUAL October 1, 2020
Revised 04-01-2021

Table 3-1 Standoff Distance

Criteria	Life-Safety Protected	Mission Critical
Minimum Standoff Distance	25 feet (7.6 m)	50 feet (15 m)
Minimum Standoff Distance for Screened Vehicle	Five (5) feet (1.5 m)	Five (5) feet (1.5 m)

Physical Security Criteria Differences

- Key building envelope design difference between the criterion is size of the blast threat.
- UFC 4-010-01 currently does not require blast design. This was a major change from previous editions. However, if it is determined that a threat exists beyond the scope of the minimum standards blast design is required and the threat size is NOT the same as the other two criterion
- VA PSRDM: Not only is the blast threat different, but there are also instances for design of non-load bearing walls, windows and doors where there is an additional not to exceed pressure and impulse requirement that is much different than the other two criterion.
- ISC: Similar size threat as the VA PSDRM but blast response is different.

Physical Security Criteria Differences

- Key building systems design difference between the criterion are the redundancy requirements.
- UFC 4-010-01 currently does not address building system redundancy.
- VA PSRDM: Specifically addresses redundancy requirements for electrical, telecom, water and mechanical distribution systems.
- ISC: Similar in scope and requirements to the VA PSDRM but can vary due to how the facility's mission criticality. For example, a FSL III may lie between a Mission Critical facility and a Life Safety Protected Facility
- Electronic security has a number of differences between the criterion and should be approached on a per agency and locale basis.

Physical Security Do's and Dont's

- Do's
- Involve Physical Security Design from the beginning.
- Provide a clear and coordinated project scope
- Fully understand the project scope requirements
- Provide clear and coordinated construction documents.

- Dont's
- Use boiler plate scopes of work unless deemed appropriate by a risk assessment
- Wait until halfway through a project to involve physical security design.
- Leave questions or assumptions regarding the physical security design unanswered or unverified
- Mix criteria between different government agencies
- Provide ambiguous and uncoordinated construction document requirements.

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Physical Security Involvement

- Some aspect of physical security is required on every government project.
- Involvement of a physical security professional should begin at the planning phase of a project with a risk assessment. This ensures that the requirements are clearly in the scope of work and the construction estimate is defined and includes cost for the protective system. Poorly written project scopes that only reference criterion are a major source of change orders and or increased design fees
- During the initiation of the design phase, the design team should have the physical security professional involved to ensure the scope is clearly defined and understood by all parties involved in the design.
- Early involvement both on the planning and design phases of project ensures that both phases are clear on the requirements and do not require future re-work to incorporate the physical security design.

Project Scope Understanding and Clarity

- Clearly understanding the project scope and requirements is the most critical step in ensuring the delivery of the project on budget. Not fully understanding and clarifying the project scope generally leads to either over or under designed protective systems.
- Key questions regarding physical security that must be answer at the beginning of the project
- Is a risk assessment required? If not is there any outcomes of the risk assessment that would fall outside the scope of the governing criteria? If so, what is the governing risk assessment methodology?
- What is the governing physical security criterion for the project?
- Are there any criteria that are local to the installation or to the government agency that are required for use on the project?

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Project Scope Understanding and Clarity

- Is the project new construction or modification/renovation/addition to existing construction?
- What is the mission criticality of the facility?
- Will there be intent on future vertical or horizontal expansion. If so, what impact will that have on the facilities mission criticality Ensure all interpretations of the scope of work and criteria related to the scope have been confirmed by the agency prior to commencing the design phase.
- There are grey areas within any criteria that can be open to interpretation. However, the agency having jurisdiction is the final say on the criteria.

Scope Understanding Example

- USACE Facility
- Primary body of the scope referenced the minimum standards UFC for the AT/FP requirements.
- Small excerpt referenced a Security Risk Analysis which identified a Medium Level of protection
- Medium level of protection is beyond the minimum standards and beyond what was designed for the project.
- Interpretation was not fully confirmed

5.4.3 Loads: See paragraph *6* for site and project specific structural loading criteria. Unless otherwise specified in paragraph *6*, use Exposure Category C for wind. If not specified, use Category C unless the Designer of Record can satisfactorily justify another Exposure Category in its design analysis based on the facility Master Plan. Submit such exceptions for approval as early as possible and prior to the Interim Design Submittal in Section "Design After Award". Design the ancillary building items, e.g. doors, window jambs and connections, overhead architectural features, systems and equipment bracing, ducting, piping, etc. for gravity, seismic, lateral loads and for the requirements of UFC 4-010-01, DOD Minimum Antiterrorism Standards for Buildings. Ensure and document that the design of glazed items includes, but is not limited to, the following items under the design loads prescribed in UFC 4-010-01 :

(a) Supporting members of glazed elements, e.g. window jamb, sill, header

(b) Connections of glazed element to supporting members, e.g. window to header

(c) Connections of supporting members to each other, e.g, header to jamb

(d) Connections of supporting members to structural system, e.g. jamb to foundation.

6.6.8.4 Antiterrorism Force Protection (ATFP)

Design exterior building elements to meet the requirements of UFC 4-010-01. Refer to the Physical Security Risk Analysis in Appendix EE.

Poorly Defined Scope Example

- VA facility
- What is Future Growth?
- Mission criticality went from Life Safety as required by the current project to Mission Critical for the future growth.
- Leads to increased construction and design cost or reduction in programmed space to meet the budget

A/E SCOPE OF WORK

1. This project (minor) will engage an architectural/engineering (A/E) firm to provide a complete design for new construction that creates a new building or addition at the VA [redacted] Campus. The new site selection and/or addition would need to be designed to provide accommodations for future growth. It also must have the capability to utilize existing floor space into the design, as well as, combine existing common areas. The need for vertical transportation will be dependent on the proposed design. The project will also require extensive phasing with all disciplines, staff and patient needs. The site around the [redacted] campus slopes steeply and will require extensive site work, in addition the utility services in the area and physical security issues will need to be developed and will be extensive.

Clarity in Construction Documents

- Confusion in the construction documents are generally the biggest attributor to physical security costs and changes during the construction phase of a project.
- The most common issue involves specification of delegated design of vendor products for the protective system. These products are typically windows, doors, glazed curtainwall and non-load bearing light gauge stud wall systems
- The most prevalent problem is specifying the incorrect blast loading criteria, blast loading response and acceptable testing method
- Most A/E firms and delegated designers of vendor products are familiar blast requirements of the UFC (DoD) and ISC (GSA). However, with that familiarity comes misuse on another agency's project such as with the VA. There are instances where these more available designed and tested system will not work for the VA blast requirements.

Specifications Examples

- VA Facility
- Performance Specifications for blast resistant windows

1.7 PERFORMANCE REQUIREMENTS:

A. Shapes and thickness of framing members shall be sufficient to withstand a design wind load of not less than 30 pounds per square foot of supported area with a deflection of not more than 1/175 times the length of the member and a safety factor of not less than 1.65 (applied to overall load failure of the unit). Provide glazing beads, moldings, and trim of not less than 0.050 inch nominal thickness.

B. Air Infiltration: When tested in accordance with ASTM E 283, air infiltration shall not exceed 0.06 cubic feet per minute per square foot of fixed area at a test pressure of 6.24 pounds per square foot 50 mile per hour wind.

C. Water Penetration: When tested in accordance with ASTM E 331, there shall be no water penetration at a pressure of 8 pounds per square foot of fixed area.

D. Glazing, doors, and frames shall comply with UFC 4-010-01, Oct 8, 2003, including change of Jan 22, 2007, Standard 10 Windows and Skylights, and Standard 12 Exterior Doors.

1. Table B-1: Standoff Distances for New and Existing Buildings
   a. Location: Controlled Perimeter
   b. Building Category: Primary Gathering Building
   c. Applicable Level of Protection: Low
   d. Applicable Expolosive weight: 1
2. Table B-3: Laminated Glass thickness Selection for Insulating Glass Unit Windows.
   a. Applicable Level of Protection: low
   b. Applicable Explosive Weight: 1
   c. Glass Thickness at Conventional Construction Standoff Distance: 0.250"
   d. Minimal Interlayer Thickness: 0.030"
3. Aluminum Frames:
   a. B-3.1.1.2 In accordance with ASTM F2248, ensure that the framing members restrict deflections at edges of the blast resistant glazing they support to 1/160 of the length of the supported edge at allowable stress levels under the equivalent 3-second design loading. The equivalent 3-secong duration design loading determined usinf ASTM F2248 will be based on the applicable explosive weight at the actual standoff distance at which the window is sited, but not greater than the conventional construction standoff distance.

      In the case of a punched window, the supported edge length will be taken as equal to the span of the glass, regardless of any intermediate support connections. In the case of multi-panel glazing systems, the supported edge length to be considered will be taken as equal to the span of a single glass panel and the deflection will be calculated based on simple support conditions for that length.

Specifications Examples

- VA Facility
- Performance Specifications based on UFC criteria
- 100% incorrect

D. Glazing, doors, and frames shall comply with UFC 4-010-01, Oct 8, 2003, including change of Jan 22, 2007, Standard 10 Windows and Skylights, and Standard 12 Exterior Doors.

1. Table B-1: Standoff Distances for New and Existing Buildings
   a. Location: Controlled Perimeter
   b. Building Category: Primary Gathering Building
   c. Applicable Level of Protection: Low
   d. Applicable Expolosive weight: 1
2. Table B-3: Laminated Glass thickness Selection for Insulating Glass Unit Windows.
   a. Applicable Level of Protection: low
   b. Applicable Explosive Weight: 1
   c. Glass Thickness at Conventional Construction Standoff Distance: 0.250"
   d. Minimal Interlayer Thickness: 0.030"

Specifications Examples

- VA Project
- Performance Specifications based on the correct VA criteria

the PSDM. Unless noted otherwise, all exterior glazing are to be blast resistant and laminated.

1.4 DESIGN REQUIREMENTS

A. 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."

B. This building should be designed to meet the 2007 VA Physical Security Design Manual for Life Safety Protected Facilities.

C. Minimum Blast Requirements: Minimum blast resistant performance requirements for the exterior walls are specified.

1. All systems requiring blast resistance shall be designed using established methods and approaches for determining dynamic loads, structural detailing and dynamic response.

Design and analysis approaches should be consistent with those in the references listed in these specifications.

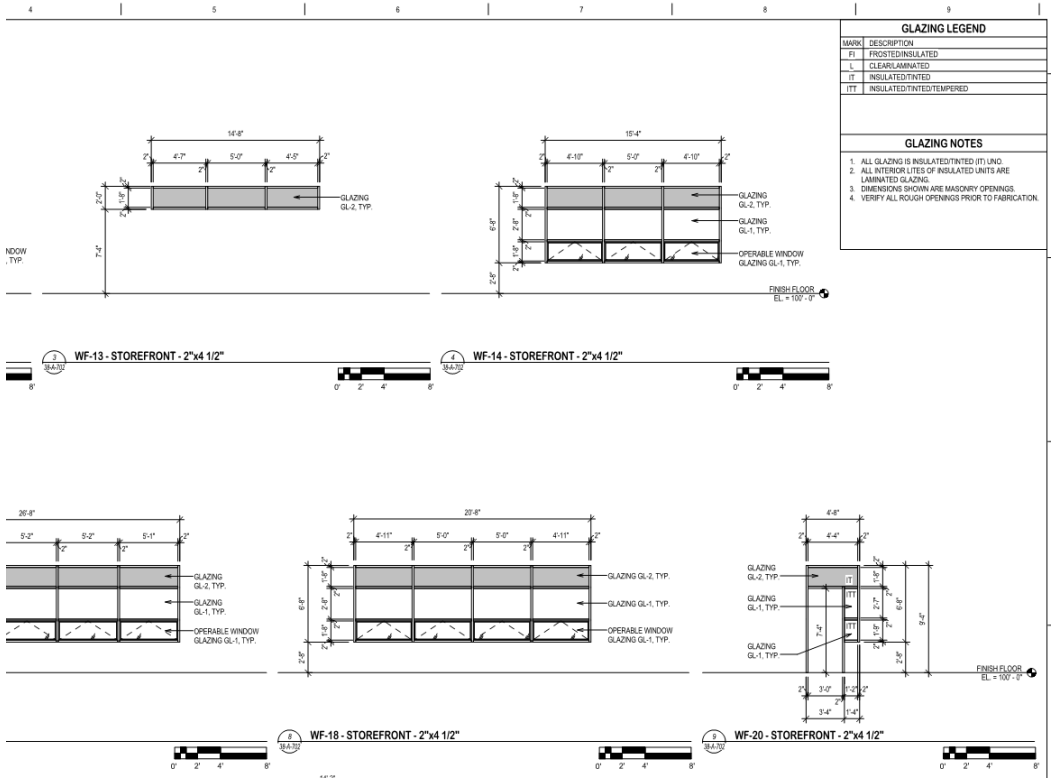
D. The glass shall be restrained within the mullions with a sufficient bite or structural silicone adhesive to allow it to develop its post-damage capacity.

Clarity in Construction Documents

- Another prevalent issue in the construction documents is unclear designation of the protective system on the contract drawings.
- Generally, we see issues where window, door and curtain wall is not designated as blast resistant, and the contractor is left to “interpret” which of these systems are required to be blast resistant. If the contractor interprets wrong their pricing will be incorrect, and the pricing is rarely on the high end of the incorrect spectrum
- Other items that commonly do not get designated on the contract drawings are location of rated vehicle barriers, areas on the site that require no parking designations, incorrect use of straight-line vehicle approaches to the building, incorrect location of drive up drop off canopy structures and correct location of mechanical system intakes to name a few.

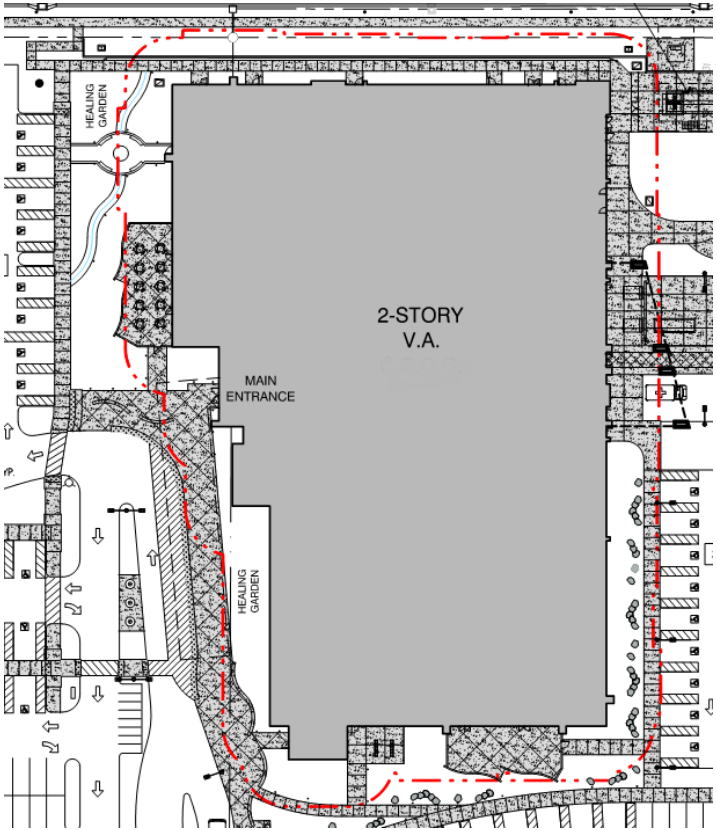
Drawing Examples

- Exterior Glazed openings
- No indication of blast resistance requirements
- Specifications did not indicate blast performance requirements
- All of which lead to changes and cost



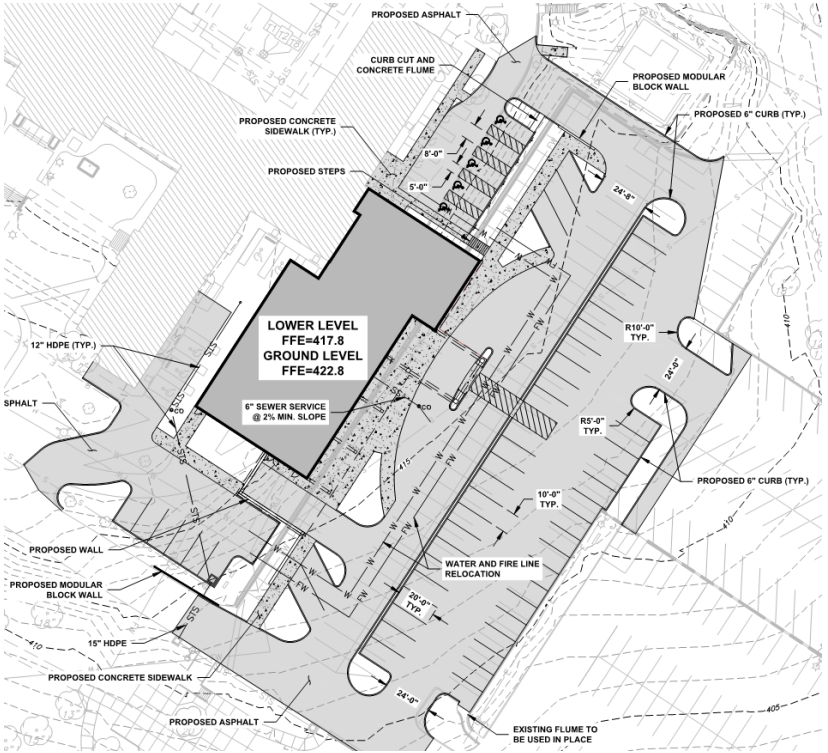
Drawing Examples

- Drawing dedicated to showing the required standoff and that all parking and roadways are beyond the minimum standoff required by the VA criteria
- As a reviewer if this is not shown on a drawing it is the first clue that physical security is not a forefront part of the design



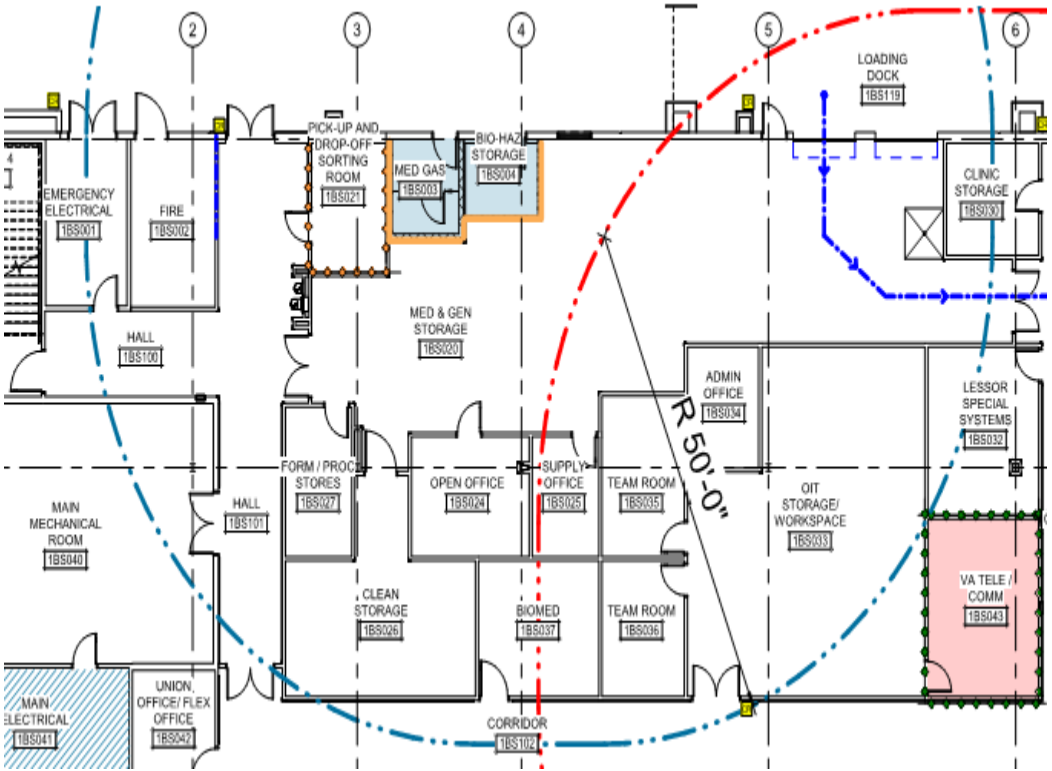
Drawing Examples

- Note no standoff distance is shown.
- If shown it would be obvious parking is within the minimum VA standoff.
- Straight line approaches are provided with no means to stop a vehicle.
- Involvement by the PSP didn't happen until well after 65% design phase.



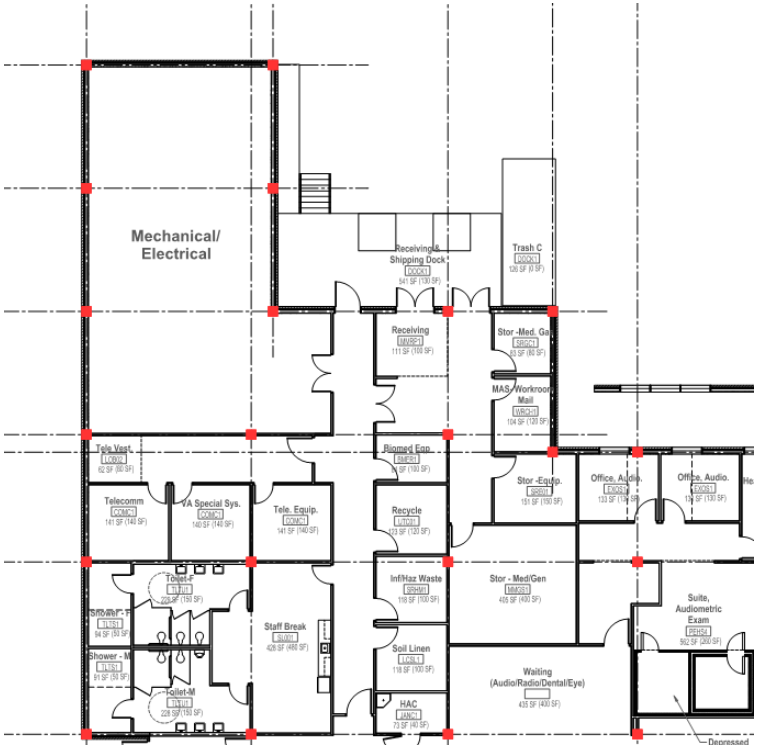
Drawing Examples

- Drawing dedicated to showing adjacencies required by the VA criteria.
- Great not only for the current project but future renovations that likely will occur



Drawing Examples

- Note no adjacencies shown.
- Violates the VA criteria.
- Critical issue as it affects every discipline on the project and could cause changes to the look of the facility and increase cost



Other Cost Saving Tips

- Standoff distance is your friend! Maximize it! Maximize standoff distance through means of more land or use of access-controlled parking. The cost of access-controlled parking generally is less than the building hardening if not used
- Provide building mass to the building envelope. The mass dampens blast effects and is relatively inexpensive compared to additional hardening.
- Physical security design does not equal BUNKER type construction. The building envelope only needs to be hardened to respond to the required level of protection and no more. Overdesign for blast loading is not only more expensive it can be counterproductive
- Physical security design does not equal Prison/High Security type construction. Use of Crime Prevention Through Environmental Design (CPTED) concepts can provide a more welcome less intrusive facility physical security design. CPTED options are generally less expensive and requires less maintenance and manpower

Q&A AND FEEDBACK

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