Anti-Terrorism & Force Protection Requirements

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Speaker:

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2024

EUROPE TRI-SERVICES Industry-Government ENGAGEMENT WORKSHOP

★★★★★ Co-Hosted by SAME

CMSgt. Adam Boubede, USAF

FUN FACTS

- New Orleans native
- Published author
- Just became an SAME Fellow
- Incoming Europe Region RVP

2024

EUROPE TRI-SERVICES Industry-Government ENGAGEMENT WORKSHOP

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Maj. Chris Haberkamp, USA

FUN FACTS

- Originally from Chicago
- Lived in Germany for the last 6 years
- Retire in October and plan to be a professional mini golfer

US DoD Antiterrorism Design Standards in Europe

Information Brief

28 February 2024

Task
For Information

Purpose
• Educate engineers and antiterrorism (AT) staff unfamiliar with AT design considerations on the US DoD's methodology, and additional design requirements in the US EUCOM Area of Responsibility

End State
• Familiarity with applicable AT design criteria and methodologies in order to reference and apply to building design projects for US DoD in Europe

US Army Europe and Africa, G34 Protection
usarmy.wiesbaden.usareur.list.g34-at-eng@mail.mil

Agenda

- Antiterrorism (AT) Requirement Sources
- Minimum AT Standards
- Additional Requirement Sources
- Facility Design Basis Threat
- Additional Considerations
- AE SOW requirements
- Resources

AT Requirement Sources

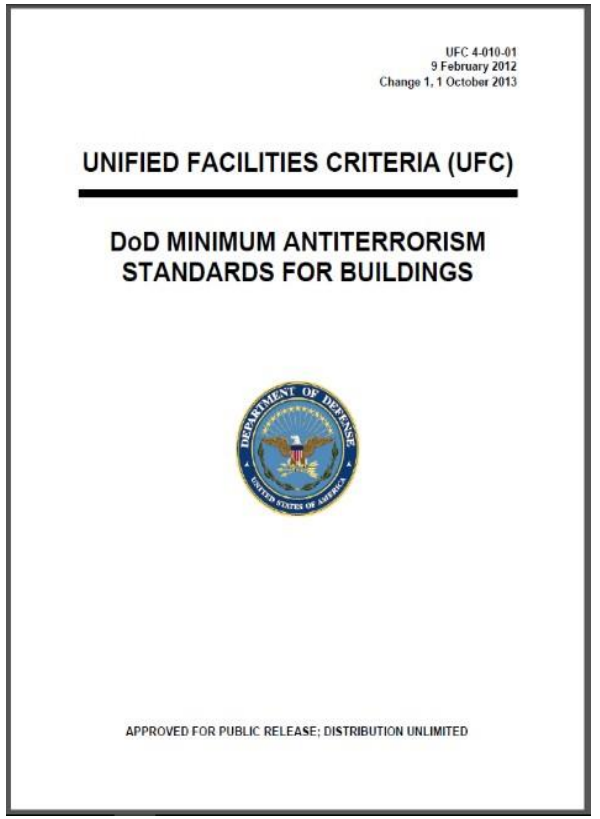
AT Requirement Sources, History

Date	Event	Method	Killed	Injured	Lesson
1983	Beirut Barracks	VBEIDs 7k kg/15k lb	307	75	Standoff & barriers
1993	WTC	VBIED 606 kg/1,336 lb	6	1042	Underground parking
1995	Murrah Federal Building, OKC	VBIED at 15 ft. 2,000 kg/4,800 lb	168	258	Progressive collapse
1996	Khobar Towers, Saudi Arabia	VBIED at 72 ft. 11,000 kg/25,000 lb	20	498	AT Design Codes and MWN
1998	US Emb. Kenya & Tanzania	VBIEDs 900 kg/2000 lb	224	4000+	FDB & secondary fragmentation
2001	WTC	Aircraft	2,996	6,000+	Emergency management
2008	Mumbai (12)	Firearms and IEDs	166	308	Coordinated attacks
2014	Peshawar Army Public School	Firearms	141	114	Children (132)
2017	OKC, BancFirst	VBIED 453 kg/1000 lb	0	0	Persistent tactics

AT Requirement Sources, History

- **Intent**
  - **Minimize mass casualties**
  - Standardization across DoD to reduce **subjectivity** for reasonable and **justifiable** levels of threat and protection

- **Evolution of DoD AT Requirements**
  - 1999: **Interim** after Khobar findings
  - 2002: First version of UFC 4-010-01
  - 2003: Standoff per **25 m & 45 m**
  - 2007: Minor changes
  - 2012: Standoff **per bldg. materials**
  - 2013: Minor changes
  - 2018: **VBIED threat tactic eliminated as minimum standard (But not in EUCOM)**


UFC 4-010-01
9 February 2012
Change 1, 1 October 2013

UNIFIED FACILITIES CRITERIA (UFC)

DoD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

AT Requirement Sources

- **DoD Facilities**
  - **Unified Facilities Criteria (UFC)**
    - **UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings**
    - UFC 4-010-03 Security Measures for High-Risk Personnel
    - **UFC 4-020-01 DoD Security Engineering Facilities Planning Manual**
    - UFC 4-020-02 DoD Security Engineering Facilities Design Manual
    - UFC 4-021-01 Mass Notification Systems
    - UFC 4-022-01 Access Control Points
    - **UFC 4-022-02 Selection of Vehicle Barriers**
  - Theater and Agency Supplements
    - **U.S. European Command AT Operations Order 23-01**
    - **Army Europe Regulation 525-13 Antiterrorism**
    - IMCOM-Europe Guidelines for Offices
    - DoDEA Protection Criteria 4-010-01
    - Army Standard for Access Control Points, 2020
    - NATO ACO Directive 80-25 Force Protection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ANTITERRORISM
OPERATIONS ORDER
23-01

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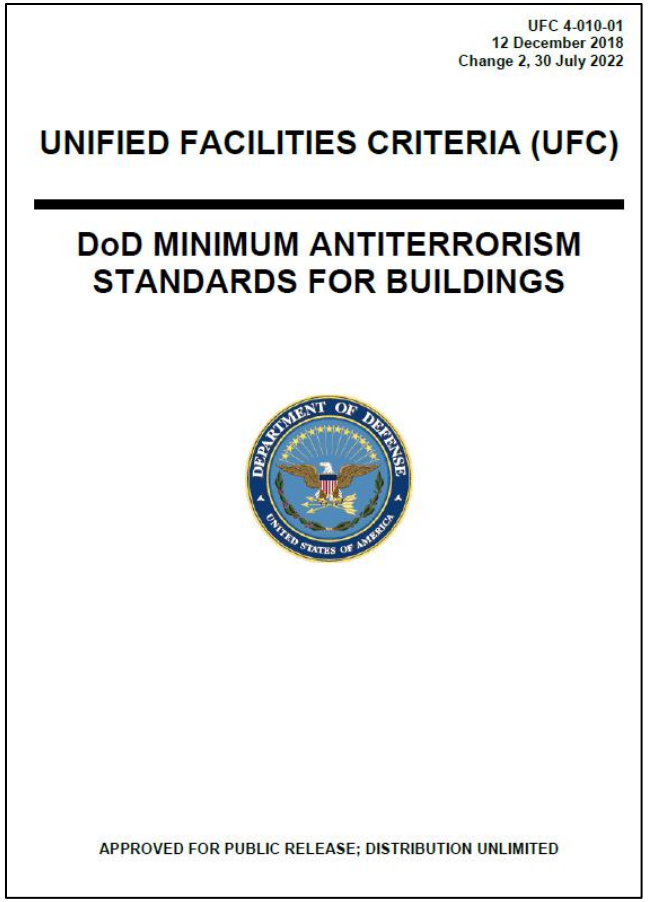
Minimum AT Standards for Buildings
UFC 4-010-01

Minimum AT Standards, Introduction

- **Applicability:**
  - New Construction
  - Changes to Existing Buildings
  - Change of Occupancy
  - Window Replacement Projects
  - HVAC Replacement Projects
  - Leased Buildings
  - See UFC for more…
- **Exemptions:**
  - “Low Occupancy” Buildings (<11 people)
  - “Temporary” and Relocatable Buildings, Transitional Spaces
  - Not Routinely Occupied
  - See UFC for more…


UFC 4-010-01
12 December 2018
Change 2, 30 July 2022

UNIFIED FACILITIES CRITERIA (UFC)

DoD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

Minimum AT Standards, Introduction

- **UFC 4-020-01 must be used to determine the Design Basis Threat (DBT) and Level Of Protection (LOP) for each project**

- **Use minimum standards of UFC 4-010-01 and EUCOM only when UFC 4-020-01 results in no identified threat or level of protection**

Minimum AT Standards, 2018 Changes

Not Applicable in USEUCOM AOR

- **Summary of 2018 UFC changes**
  - Eliminated VBIED as minimum threat scenario (But not in EUCOM)
    - Only protects occupants from collateral damage of VBIEDs targeting other buildings (But not in EUCOM)
  - Progressive collapse considerations no longer required for existing buildings
  - Appendix B and C (extensive and includes windows)

- **Impact**
  - Less forgiving for omissions and errors of AT topics in project development
  - Increased importance of AT stakeholder involvement in planning
  - Increased importance of performance and accuracy of facility DBT Analysis
  - Increased importance of blast design

Minimum AT Standards, Overview

Revised by USEUCOM AT OPORD

- UFC 4-010-01 Standards
  - Site Planning
    - **1: Standoff Distances**
    - **2: Unobstructed Space**
    - **3: Drive-Up/Drop-Off Areas**
    - **4: Access Roads**
    - 5: Parking Beneath Buildings or on Rooftops
  - Structural Design
    - 6: Progressive Collapse Resistance
    - 7: Structural Isolation
    - 8: Building Overhangs and Breezeways
    - 9: Exterior Masonry Walls
  - Architectural Design
    - **10: Glazing**
    - 11: Building Entrance Layout
    - **12: Exterior Doors**
    - 13: Mail Rooms and Loading Docks
    - 14: Roof Access
    - 15: Overhead Mounted Architectural Features
  - Electrical & Mechanical Design
    - 16: Air Intakes
    - 17: Mail Room and Loading Dock Ventilation
    - 18: Emergency Air Distribution Shutoff
    - 19: Equipment Bracing
    - 20: Under Building Access
    - 21: Mass Notification

Minimum AT Standards, Stds. 1-4

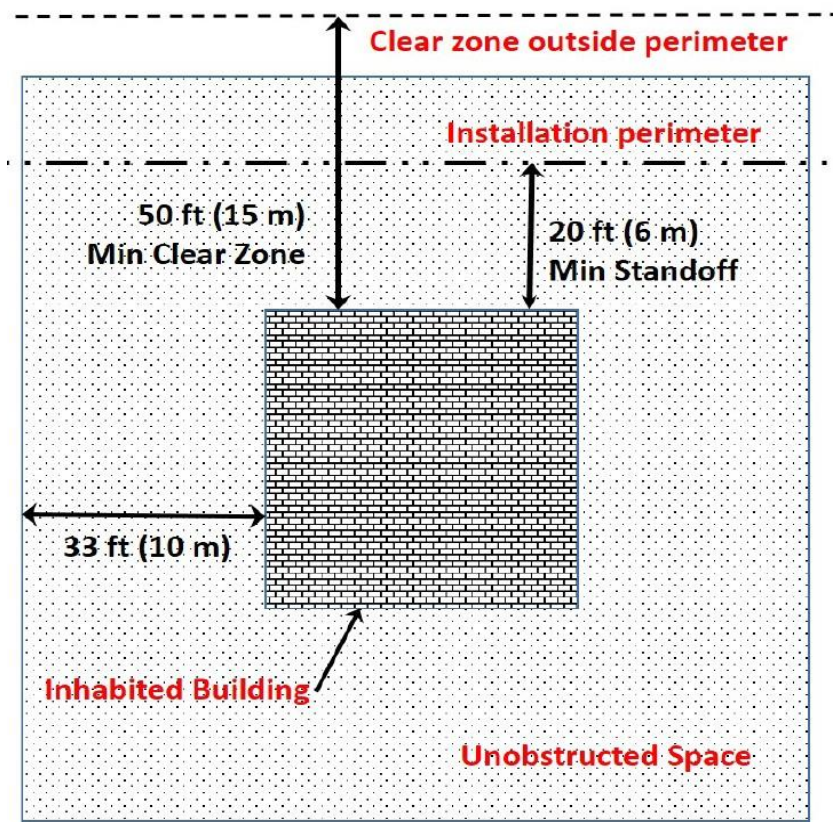
Not Applicable in USEUCOM AOR

- **Std. 1: Standoff Distances**
  - No standoff requirements from roadways and parking within controlled perimeter
  - Required standoff to perimeter is 6- 15 m
  - Perimeter standoff not required for existing buildings

- **Std. 2: Unobstructed Space**
  - Unobstructed space set to 10 m, parking allowed

- ~~**Std. 3: Drive-Up/Drop-Off Areas**~~
- ~~**Std. 4: Access Roads**~~
  - Eliminated restrictions for access roads, etc.

Figure 3-1 Installation Perimeter with Outer Clear Zone

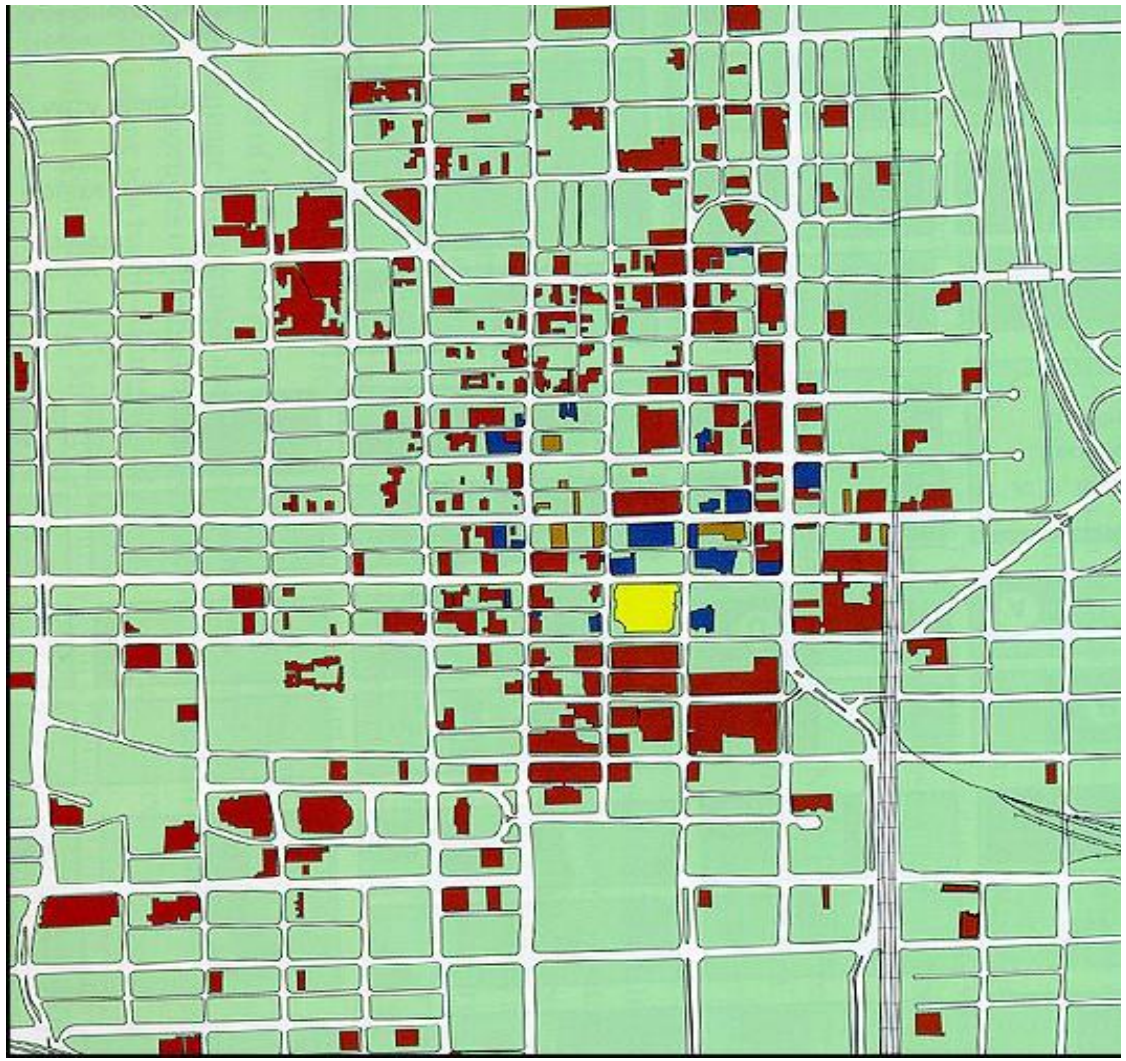


Minimum AT Standards, Std. 10&12 Glazing & Doors

Not Applicable in USEUCOM AOR

- **Std. 10: Glazing**
  - Windows prescribed minimum of 6 mm laminated glass for collateral damage

- **Std. 12: Exterior Doors**
  - Doors not designed for blast, need only to open outwards



Minimum EUCOM AT Standards, Stds. 1-4

- **EUCOM design guidance for VBIED DBTs**
  - **Impact: requires standoff, barriers, window designs, wall materials**
  - **Standoff and Barriers**
    - **Building standoff and wall materials to protect from VBIED**
      - **Use Appendix B of UFC 4-010-01 for VBIED design guidance**
      - **Use Appendix C of UFC 4-010-01 for standoff distances**
    - **If moving VBIED threat, building standoff must be enforced with continuous perimeter of passive and active barriers**
      - **Active barriers shall be rated, but not required to be within the DoD Anti-Ram Vehicle Barrier List**
      - **Passive barriers not required to be rated if LOP is Medium or less, but must comply with specifications within Annex D e.g. height, embedment, spacing, weight**

Minimum EUCOM AT Standards, Stds. 1-4

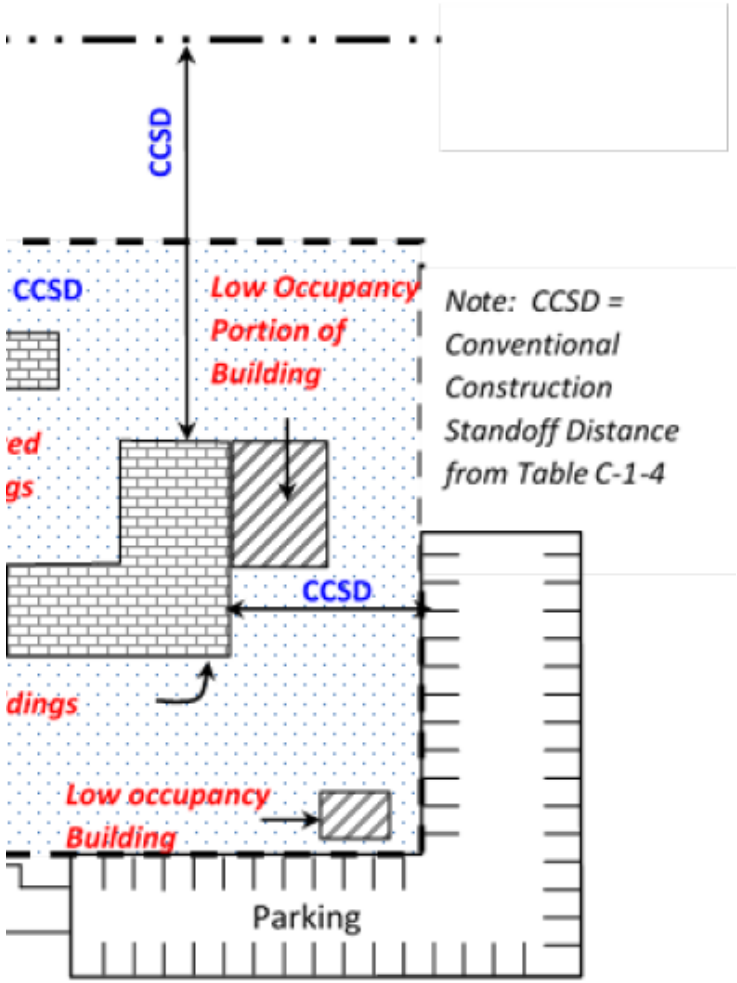
- **EUCOM design standards for VBIED DBTs**

- **Std. 1: Standoff Distances**
  - Required from parking, roadways, and perimeter, etc.
  - Use tables of UFC's Appendix C
  - If moving VBIED tactic applicable, standoff shall be enforced with barriers

- **Std. 2: Unobstructed Space**
  - Unobstructed space extends to end of standoff distance; parking not allowed within

- **Std. 3: Drive-Up/Drop-Off Areas**
- **Std. 4: Access Roads**
  - If moving VBIED tactic applicable, access shall be enforced with rated barrier

With Controlled Perimeter



Minimum EUCOM AT Standards, Stds. 1-4

Example Standoff Table from Appendix C of UFC 4-010-01

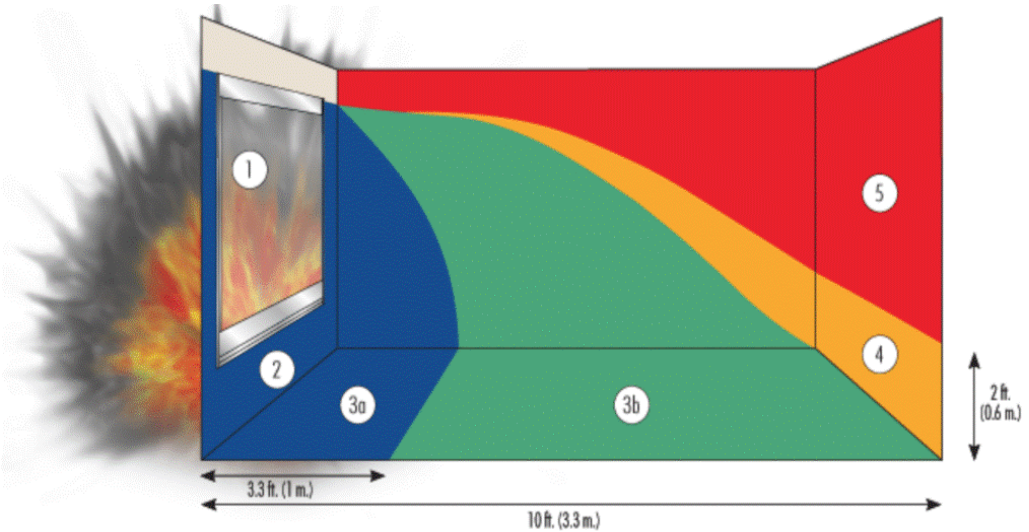
Table C-2 Representative Standoff Distances for Low Level of Protection [7]

Construction [1]	Explosive Weight (TNT)									
	55 lbs (25 kg)		220 lbs (100 kg)		550 lbs (250 kg)		1,100 lbs (500 kg)		4,400 lbs (2,000 kg)	
	LB [2]	NLB [3]	LB [2]	NLB [3]	LB [2]	NLB [3]	LB [2]	NLB [3]	LB [2]	NLB [3]
Unreinforced European Clay Masonry [4]	38 ft (11 m)	22 ft (7 m)	163 ft (50 m)	59 ft (18 m)	398 ft (121 m)	148 ft (45 m)	748 ft (228 m)	314 ft (96 m)	1614 ft (492 m)	1146 ft (349 m)
Reinforced Masonry [4]	28 ft (9 m)	13 ft (4 m)	85 ft (26 m)	30 ft (9 m)	166 ft (51 m)	72 ft (22 m)	273 ft (83 m)	120 ft (37 m)	736 ft (224 m)	326 ft (99 m)
Reinforced Concrete [4]	22 ft (7 m)	14 ft (4 m)	104 ft (32 m)	35 ft (11 m)	234 ft (71 m)	105 ft (32 m)	424 ft (129 m)	200 ft (61 m)	1255 ft (383 m)	663 ft (202 m)
Concrete roofs and Metal Roofs w/ concrete topping[5]	13 ft (4 m)		23 ft (7 m)		50 ft (15 m)		92 ft (28 m)		270 ft (82 m)	
Windows [6]	51 ft (15 m)		123 ft (37 m)		197 ft (60 m)		269 ft (82 m)		545 ft (166 m)	
Minimum Standoff Distance [8]	13 ft (4 m)		20 ft (6 m)		26 ft (8 m)		33 ft (10 m)		50 ft (15 m)	

Standoff distance for windows and doors must be individually analyzed, and typically control (typically no less than 16 m)

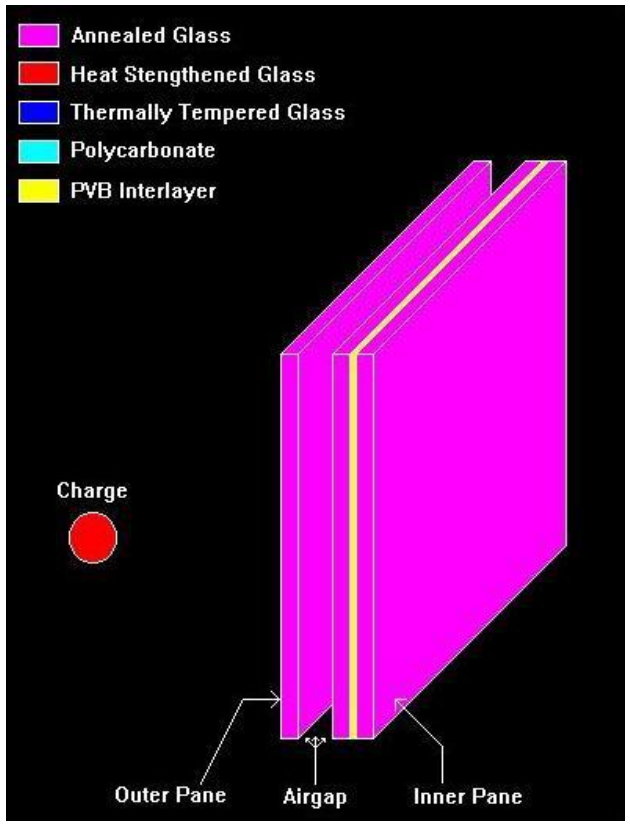
Minimum EUCOM AT Standards, Std. 10&12 Glazing & Doors

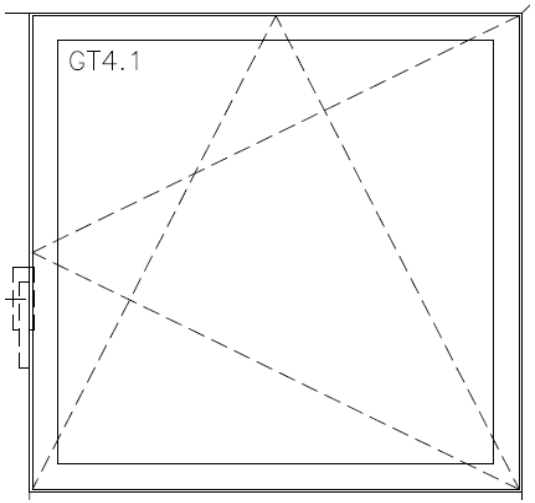
- **EUCOM design standards for VBIED DBTs**
  - **Impact: requires standoff, barriers, window designs, wall materials**
  - **Windows and Doors**
    - **Do not use the UFC prescribed window makeup of Standard 10**
    - **Windows and doors must be individually designed based on DBT, LOP, and standoff using Appendix B**

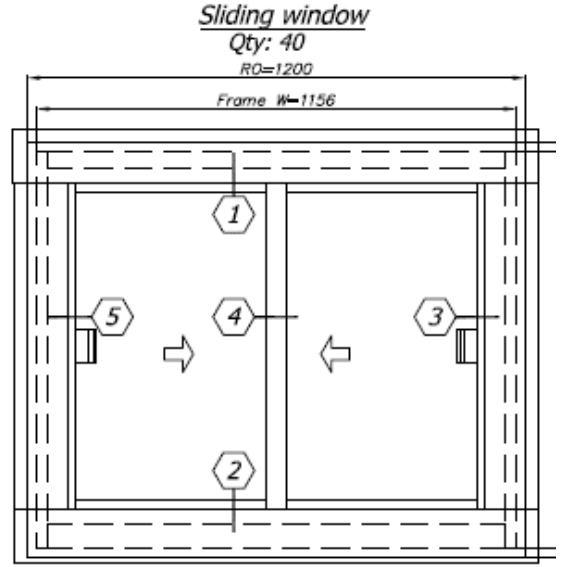


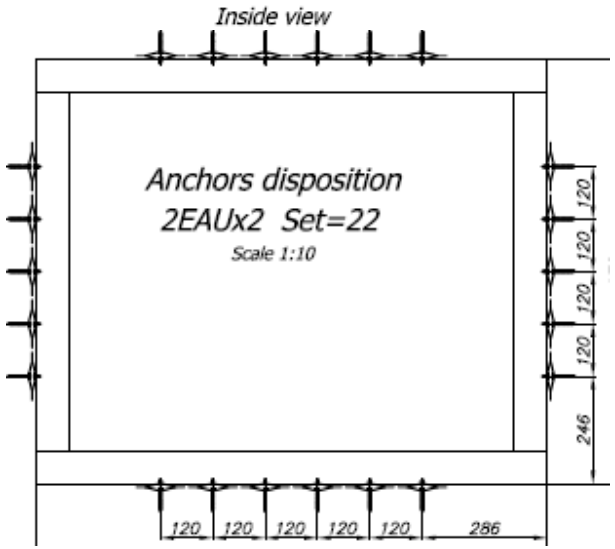
Minimum EUCOM AT Standards, Std. 10 Glazing

- **Windows often govern required standoff distance**
- **For operable windows, both inner and outer glazing panes shall be laminated**





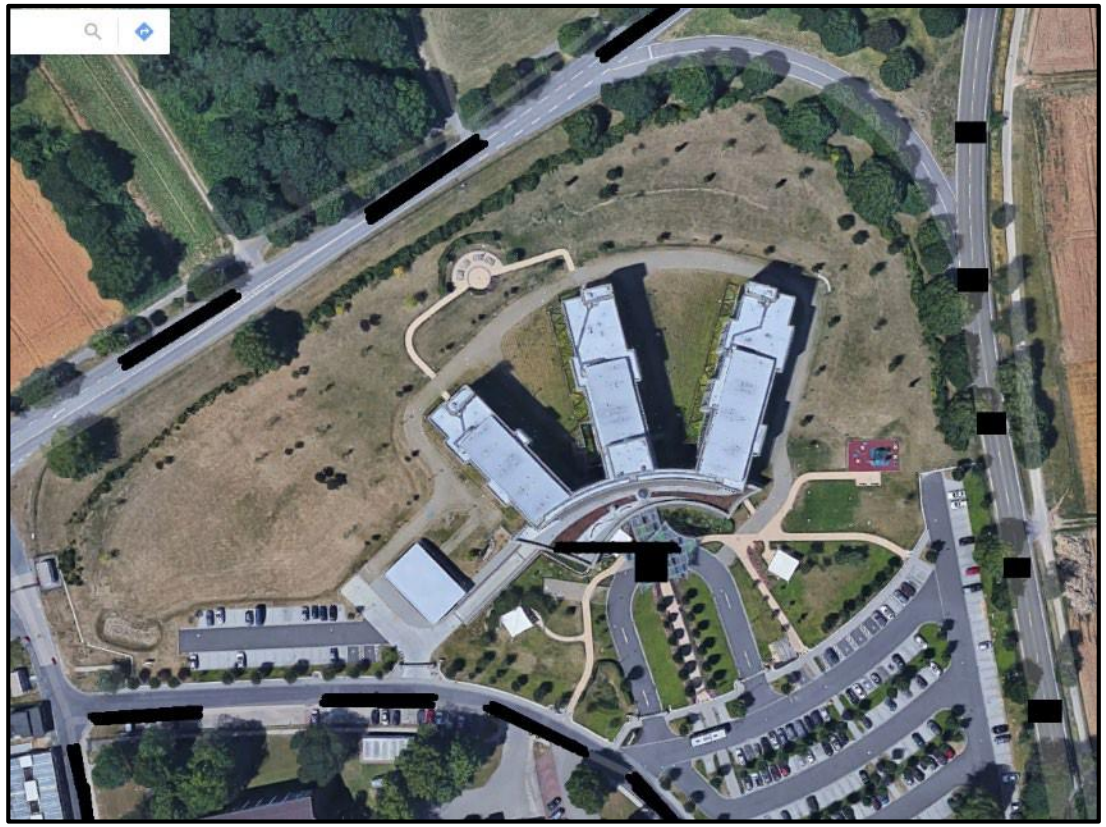




Minimum AT Standards in EUCOM AOR

Summary of USEUCOM AT OPORD 23-01 effects in application

- **Std. 1: Standoff Distances**
- **Std. 2: Unobstructed Space**
- **Std. 3: Drive-Up/Drop-Off Areas**
- **Std. 4: Access Roads**
- **Std. 10: Glazing**
- **Std. 12: Exterior Doors**



Minimum AT Standards, Overview

Revised by USEUCOM AT OPORD

- UFC 4-010-01 Standards
  - Site Planning
    - **1: Standoff Distances**
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    - **4: Access Roads**
    - 5: Parking Beneath Buildings or on Rooftops
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    - 6: Progressive Collapse Resistance
    - 7: Structural Isolation
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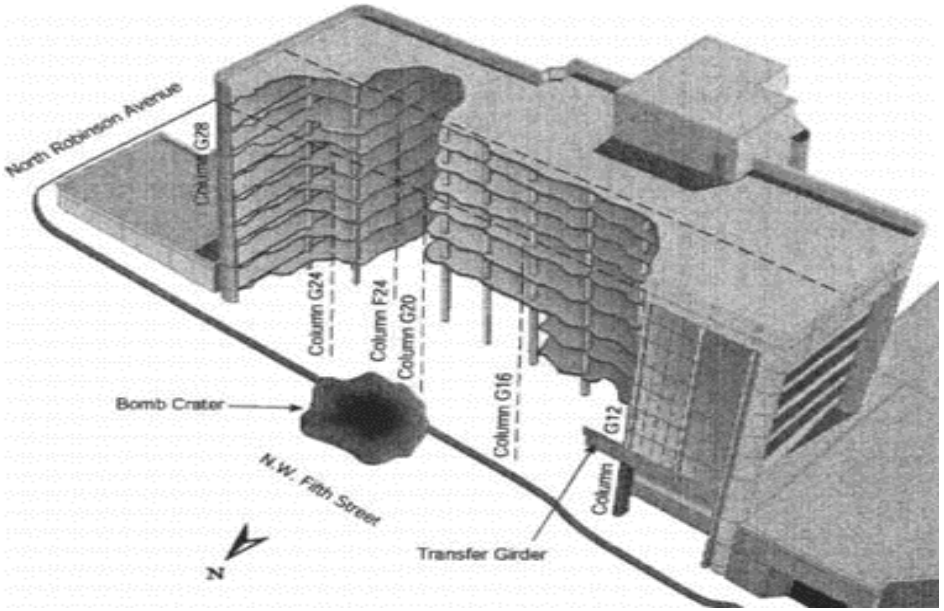
    - 16: Air Intakes
    - 17: Mail Room and Loading Dock Ventilation
    - 18: Emergency Air Distribution Shutoff
    - 19: Equipment Bracing
    - 20: Under Building Access
    - 21: Mass Notification

Minimum AT Standards, Std. 6 Prog. Collapse

- **Std. 6: Progressive Collapse**
  - **Localized failure => overloading and failure of adjoining members**
  - **Disproportionate damage**
  - **Required for new buildings ≥ 3 stories**

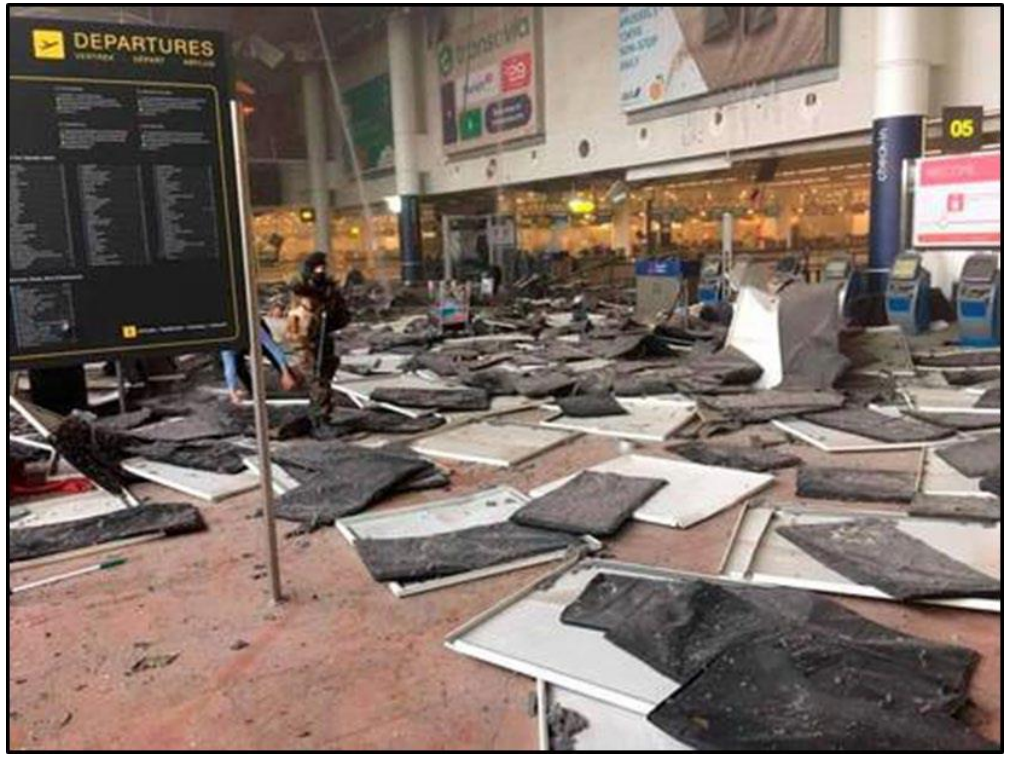


Minimum AT Standards, Stds. 15 & 19

- **Std. 15: Overhead Mounted Architectural Features**

- **Std. 19: Equipment Bracing**

If > 14 kg, special mounting and design requirements



Brussels Airport Bombing 2016

Additional Requirement Sources

Theater Specific Requirements

- **USEUCOM AT OPORD 23-1, Annex D (v2023), key contents:**
  - **Each installation shall have at least one engineer with SET**
  - **Reinforces requirements for Local DBT (installation-wide) and Facility DBT (asset based); distinction, when, who**
  - **Additional minimum tactics e.g. standoff for stationary and moving VBIEDS**
  - **Guidance for implementation and technical design specifications**
  - **Required AT documentation submissions from planning through construction**
  - **Process to request relief from AT Construction Standards**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Other Specific Requirements

- **Army Europe Regulation 525-13 Antiterrorism**, Appendix E, Antiterrorism Construction Standards
  - Perimeter countermobility
  - Access Control Point (ACP) search procedures
  - Centralized parking & cantonment areas
  - Active shooter (UFC 4-023-10 Safe Havens)
  - Facility operation and response plan

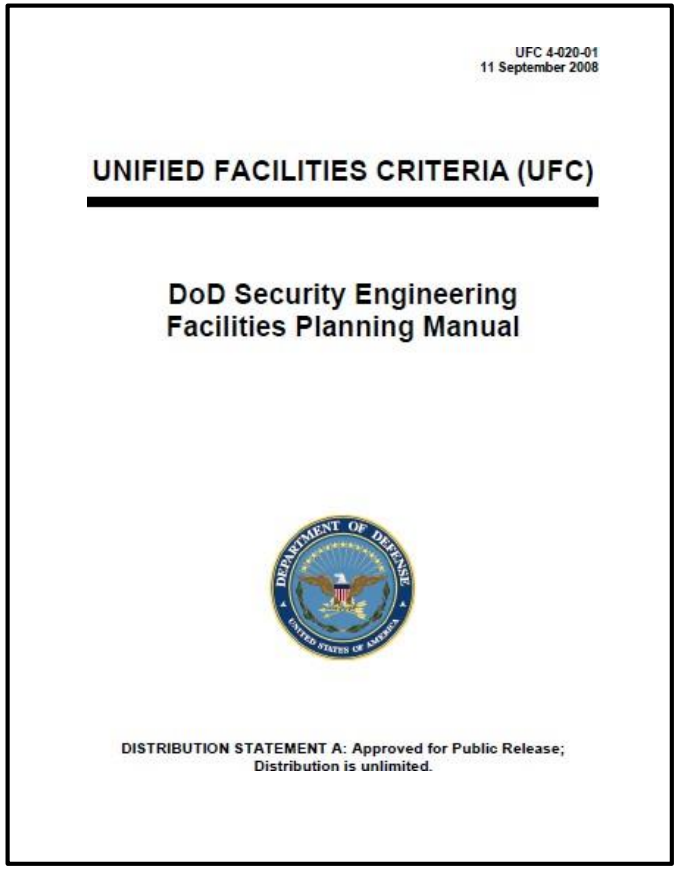
- **The Army Standard for Access Control Points:**
  - Definitive design requirements e.g. back-up generator and UPS

- **DoDEA Protection Criteria 4-010-01:**
  - 36 Standards of physical security and antiterrorism criteria following similar structure and intent of UFC 4-010-01; additional school-specific considerations e.g. lockdown interior doors

Facility Design Basis Threat
UFC 4-020-01

Facility DBT

- UFC 4-020-01 **DoD Security Engineering Facilities Planning Manual**
  - Chapter 3 describes steps to **perform facility design basis threat (DBT)**
  - **Risk-asset management** to establish protection thresholds
  - Chapter 4 describes **design strategies**
  - Appendixes list **cost impacts**


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.

Facility DBT

- UFC 4-020-01 Chapter 3, Design Criteria Development
  - **Risk** is function of **criticality, threat, and vulnerability**
  - Step 1: Convene the planning team
  - Step 2: Identify assets
  - Step 3: Determine **asset value**
  - Step 4: Identify **aggressor likelihoods**
  - Step 5: Identify **tactics** and threat **severity** levels
  - Step 6: Consolidate into initial **design basis threat (DBT)**
  - Step 7: Determine initial **level of protection (LOP)**
  - Step 8: Determine planning risk levels
  - Step 9: Assess acceptability of risk levels
  - Step 10: Identify user constraints

Facility DBT, Asset Value

ASSET VALUE/AGGRESSOR LIKELIHOOD WORKSHEET

Project or Building	Asset	Analyst
A Motor Pool	*Tactical vehicles*	*Jane Q. Planner*
	Asset Category: *D*	Date: *4 August 2008*

Value Rating Factors: Criticality to User / Population Type [1]	Impact on National Defense	Replaceability	Political Sensitivity	Relative Value to User	Sum of Value Factors	Value Rating [2]
General Population						
Critical Infrastructure and Operations and Activities						
Sensitive Information						
All Other Assets						
4	*4*	*4*	*3*	*4*	*19*	*.76*

Notes:

Potential Aggressors	Aggressor Goal [3]	Aggressors	Likelihood Rating Factors: Installation Location [4]	Publicity Profile [4]	Accessibility [4]	Availability [4]	Dynamics [4]	Recuperability	Relative Value to Aggressor	Law Enforcement [4]	Aggressor's Perception of Success	Threat Level	History [5] / Intentions [6]	Operational Capability [6]	Operating Environment [6]	Activity [6]	Sum of Likelihood Factors	Likelihood Rating [7]
✓	*M*	Unsophisticated Criminals	*2*	*4*	*2*	*2*	*3*	*12*	*15*	*18*	*24*	*6*	*6*				*94*	*.52*
✓	*M*	Sophisticated Criminals	*2*	*4*	*2*	*2*	*3*	*12*	*12*	*18*	*24*	*6*	*6*				*91*	*.51*
✓	*M*	Organized Crimi... Groups	*2*	*4*	*2*	*2*	*3*	*15*	*9*	*18*	*30*	*6*	*6*				*97*	*.54*
✓	G	Vand...	*2*	*4*	*2*	*2*	*3*	*12*	*6*	*18*	*24*	*6*	*6*				*85*	*.47*
✓	G	Extremist Protesters	*2*	*4*	*2*	*2*	*3*	*15*	*6*	*18*	*24*	*6*	*6*				*88*	*.49*
✓	G	Domestic Terrorists	*2*	*4*	*2*	*2*	*3*	*15*	*9*	*18*	*24*	*5*	*4*	*4*	*6*	*4*	*102*	*.57*
✓	G	International Terrorists	*2*	*4*	*2*	*2*	*3*	*15*	*9*	*18*	*30*	*5*	*4*	*6*	*10*	*2*	*110*	*.61*
✓	G	State Sponsored Terrorists	*2*	*4*	*2*	*2*	*3*	*15*	*9*	*18*	*30*	*5*	*10*	*10*	*10*	*10*	*130*	*.72*
✓	G	Saboteurs	*2*	*4*	*2*	*2*	*3*	*15*	*3*	*18*	*30*	*6*	*6*				*91*	*.51*
		Foreign Intelligence Services																

1. Population Type applies to General Population only
2. Sum of Value Ratings ÷ 10 for Sensitive Information 15 for General Population; 20 for Critical Infrastructure and Operations and Activities, 25 for all other assets
3. G for mission related goal, P for publicity related goal, M for monetary related goal
4. Factors that should be same for all aggressors for given asset
5. Applies to all aggressors other than terrorists
6. Applies to Terrorists only
7. Sum of Likelihood Ratings = 180

Value Rating Factors: Criticality to User / Population Type [1]	Impact on National Defense	Replaceability	Political Sensitivity	Relative Value to User	Sum of Value Factors	Value Rating [2]
4	*4*	*4*	*3*	*4*	*19*	*.76*

Facility DBT, Levels of Protection

Table 3-28. Applicable Levels of Protection

Tactic	Threat Severity Level	Asset Value				
		≤ 0.5	0.51 – 0.74	0.75 – 0.85	0.86 – 0.95	0.96 - 1
Moving Vehicle Bomb	All	Very Low[1]	Low[2]	Medium	High	
Stationary Vehicle Bomb	All	Very Low[1]	Low[2]	Medium	High	
Hand Delivered Devices	All	Very Low[1]	Low[2]	Medium	High	
Indirect Fire Weapons	All	Very Low[1]	Low	Medium	High	
Direct Fire Weapons	VH	Very Low[1]	Low	Medium[3]	High	
	L, M, H	Very Low[1]	Low		High	
Forced Entry	All	Very Low[1]	Low	Medium	High	Very High
Covert Entry	All		Low	Medium	High	Very High
Visual Surveillance	All			High		
Acoustic Eavesdropping	All		Low	Medium	High	Very High
Electronic Emanations Eavesdropping	All			High		
Airborne Contaminants	All	Very Low[1]	Low	Medium	High	
Waterborne Contaminants	All	Very Low[1]	Low	Medium	High	
Waterfront Attack	All	Very Low[1]	Low	Medium[3]	High	Very High

Facility DBT, Protection Performance

Level of Protection	Potential Building Damage/Performance [2]	Potential Door and Glazing Hazards[3,4]	Potential Injury
Below AT standards[1]	Severe damage. Progressive collapse likely. Space in and around damaged area will be unusable.	Windows will fail catastrophically and result in lethal hazards. *(High hazard rating)* Doors will be thrown into rooms. *(Category V)*	Majority of personnel in collapse region suffer fatalities. Potential fatalities in areas outside of collapsed area likely.
Very Low	Heavy damage - Onset of structural collapse, but progressive collapse is unlikely. Space in and around damaged area will be unusable.	* Glazing will fracture, come out of the frame, and is likely to be propelled into the building, with potential to cause serious injuries. *(Low hazard rating)* * Doors will become dislodged from the structure but will not create a flying debris hazard. *(Category IV)*	Majority of personnel in damaged area suffer serious injuries with a potential for fatalities. Personnel in areas outside damaged area will experience minor to moderate injuries.
Low	Moderate damage – Building damage will not be economically repairable. Progressive collapse will not occur. Space in and around damaged area will be unusable.	* Glazing will fracture, potentially come out of the frame, but at reduced velocity, does not present a significant injury hazard. *(Very low hazard rating)* * Doors will experience non-catastrophic failure, but will have permanent deformation and may be inoperable. *(Category III)*	Majority of personnel in damaged area suffer minor to moderate injuries with the potential for a few serious injuries, but fatalities are unlikely. Personnel in areas outside damaged areas will potentially experience minor to moderate injuries.
Medium[5]	Minor damage – Building damage will be economically repairable. Space in and around damaged area can be used and will be fully functional after cleanup and repairs.	* Glazing will fracture, remain in the frame and results in a minimal hazard consisting of glass dust and slivers. *(Minimal hazard and No Hazard ratings)* * Doors will be openable but will have permanent deformation. *(Category II)*	Personnel in damaged area potentially suffer minor to moderate injuries, but fatalities are unlikely. Personnel in areas outside damaged areas will potentially experience superficial injuries.
High[5]	Minimal damage. No permanent deformations. The facility will be immediately operable.	* Innermost surface of glazing will not break.(No Break hazard rating) * Doors will be substantially unchanged and fully operable. *(Category I)*	Only superficial injuries are likely.

Medium LOP to blast event

- **Building:** minor damage, repairable
- **Glazing:** fracture, but remain in frame
- **Human:** injuries, but fatalities unlikely

Facility DBT, Aggressor Likelihood

ASSET VALUE/AGGRESSOR LIKELIHOOD WORKSHEET

Project or Building	Asset	Analyst
A Motor Pool	*Tactical vehicles*	*Jane Q. Planner*
	Asset Category: *D*	Date: *4 August 2008*

Value Rating Factors: Criticality to User / Population Type[1]	Impact on National Defense	Replaceability	Political Sensitivity	Relative Value to User	Sum of Value Factors	Value Rating[2]	Potential Aggressors	Aggressor Goal[3]	Aggressors	Likelihood Rating Factors: Installation Location[4]	Publicity Profile[4]	Accessibility[4]	Availability[4]	Dynamics[4]	Recognizability	Relative Value to Aggressor	Law Enforcement[4]	Aggressors' Perception of Success	Threat Level	History[5] / Interactions[6]	Operational Capability[6]	Operating Environment[6]	Activity[6]	Sum of Likelihood Factors	Likelihood Ratings[7]
General Population							✓	M	Unsophisticated Criminals	2	4	2	2	3	12	15	18	24	6	6				94	.52
Critical Infrastructure and Operations and Activities							✓	M	Sophisticated Criminals	2	4	2	2	3	12	12	18	24	6	6				91	.51
							✓	M	Organized Criminal Groups	2	4	2	2	3	15	9	18	30	6	6				97	.54
Sensitive Information							✓	G	Vandals	2	4	2	2	3	12	6	18	24	6	6				85	.47
All Other Assets							✓	G	Extremist Protesters	2	4	2	2	3	15	6	18	24	6	6				88	.49
4	4	4	3	4	19	.76	✓	G	Domestic Terrorists	2	4	2	2	3	15	9	18	24	5	4	4	6	4	102	.57
Notes:							✓	G	International Terrorists	2	4	2	2	3	15	9	18	30	5	8	6	10	2	116	.64
							✓	G	State Sponsored Terrorists	2	4	2	2	3	15	9	18	30	5	10	10	10	10	130	.72
							✓	G	Saboteurs	2	4	2	2	3	15	3	18	30	6	6				91	.51
									Foreign Intelligence Services																

0.64

1. Population Type applies to General Population only
2. Sum of Value Ratings ÷ 10 for Sensitive Information 15 for General Population; 20 for Critical Infrastructure and Operations and Activities; 25 for all other assets
3. G for mission related goal, P for publicity related goal, M for monetary related goal.
4. Factors that should be same for all aggressors for given asset
5. Applies to all aggressors other than terrorists
6. Applies to Terrorists only
7. Sum of Likelihood Ratings ÷ 180

Facility DBT, Example Worksheet

TACTIC, THREAT SEVERITY, AND LEVEL OF PROTECTION WORKSHEET

Project or Building	Asset	Asset Value	Analyst	Date
A Motor Pool	*Tactical Vehicles* — Asset Category: *D*	*0.76*	*Jane Q. Planner*	*4 August 2008*

Tactics / Aggressors	Aggressor Likelihood	Explosives and Incendiary Devices			Standoff Weapons		Entry		Surveillance and Eavesdropping			Contamination		Waterfront Attack
		Moving Vehicle Devices	Stationary Vehicle Devices	Hand Delivered Devices	Indirect Fire Weapons	Direct fire weapons	Forced Entry	Covert Entry	Visual Surveillance	Acoustic Eavesdropping	Electronic Emanations Eavesdropping	Airborne Contamination	Waterborne Contamination	
Applicable Tactics			✓	✓	✓	✓	✓	✓						
Unsophisticated Criminals	.52						L	L						
Sophisticated Criminals	.51						L	L						
Organized Criminal Groups	.54			L		L	L	L						
Vandals	< .5													
Extremist Protesters	< .5													
Domestic Terrorists	.57		L	M	L	L	L	L						
International Terrorists	.64		L	M	L	L	L	L						
State Sponsored Terrorists	.72		L	M	L	L	M	L						
Saboteurs	.51			M	L	L	M	L						
Foreign Intelligence Services														
Initial Design Basis Threat (highest Threat Severity Level for each tactic)			L	M	L	L	M	L						
Initial Level of Protection for Applicable Tactic (Table 3-28)			M	M	M	L	M	M						

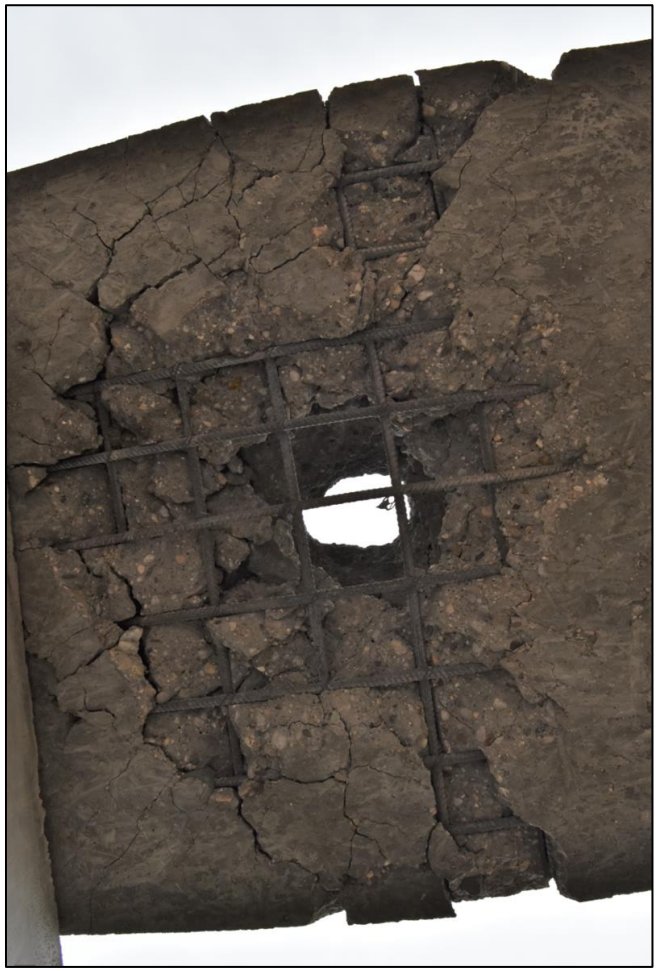
Facility DBT, Threat Parameters

Table 3-27 Threat Parameters

Aggressor Tactic	Design Basis Threat	Weapons	Tools Or Delivery Method
Moving and Stationary Vehicle Devices	Special Case [1]	9000 kg (19,800 lbs) TNT	18,000 kg / ~ 40,000 lbs truck
	Very High	2000 kg (4400 lbs) TNT, Fuel	7000 kg / ~ 15,000 lbs truck
	High	500 kg (100 lbs) TNT, Fuel	2500 kg / ~ 5500 lbs truck
	Medium	250 kg (550 lbs) TNT, Fuel	1800 kg / ~ 4000 lbs car
	Low	100 kg (220 lbs) TNT	1800 kg /~ 4000 lbs car
	Very Low	25 kg (55 lbs) TNT	1800 kg / ~ 4000 lbs car
Hand Delivered Devices	High	IID, IED (up to 25 kg/55 lbs TNT) &hand grenades (Mail bomb limited to 1 kg/2.2 lbs TNT)	None
	Medium	IID, IED (up to 1 kg/2.2 lbs TNT) & hand grenades	
	Low	IID	
Indirect Fire Weapons Attack	Very High	Improvised mortar (up to 20 kg/44 lbs TNT)	None
	High	122 mm rocket	
	Medium	82 mm mortar	
	Low	Incendiary devices	
Direct Fire Weapons Attack	Very High	Light antitank weapons, and UL 752 Level 10 (12.7 mm (0.50 caliber), 1 shot)	None
	High	UL 752 Level 9 (7.62mm NATO AP, 1 shot)	
	Medium	UL 752 Level 5 (7.62mm NATO ball)	
	Low	UL 752 Level 3 (.44 magnum)	

Facility DBT, Threat Parameters

- **Custom threat tactics and protection thresholds also possible e.g. sUAV surveillance/IEDs**



Facility DBT, Threat Parameters

Facility DBT, Protection Parameters

- UFC 4-020-01 **Chapter 4, Protection Design Strategies**
  - **Vehicle bomb tactics (stationary & moving)**
  - Hand delivered devices
  - Indirect fire weapons
  - **Direct fire weapons**
    - **Low LOP: block sightlines**
    - **High LOP: harden building elements (e.g. 4” RC for 7.62mm)**
  - Airborne contamination tactic
  - Waterborne contamination tactic
  - Waterfront attack tactic
  - **Forced entry tactic**
    - **Low LOP: 1 min. delay**
    - **High LOP: 15 min. delay**
  - Covert entry tactic
  - Visual surveillance tactic

AT Roles in the DoD Structure

- **IMCOM-E, US Army Garrison Staff**
  - Antiterrorism Officer
  - Physical Security Officer
  - Chief of Protection
  - DPW Engineer with Security Engineering Training

- **Higher Headquarters**
  - GOFP e.g. V Corps
  - USAREUR-AF

- **USACE Europe District**

- **AEs**

Lessons Learned

- DBT-LOP Analysis:
  - Terminology of “Installation/Local DBT” vs. “Facility DBT”
  - Practice; advance completion with noted assumptions
  - Dynamic threat environments through building design life
- VBIED:
  - Assumed design weight must match ACP operational capabilities
  - Centralized parking, cantonment areas, siting considers circulation
- ACP Final Denial Barrier
  - Type, operational design, controls, testing, guard knowledge for use
- Window Mitigations:
  - Fragment retention film (application, design, design life)
- DD1391s
  - Impact of 2018 UFC
- Careful with exemptions for temporary and swing spaces

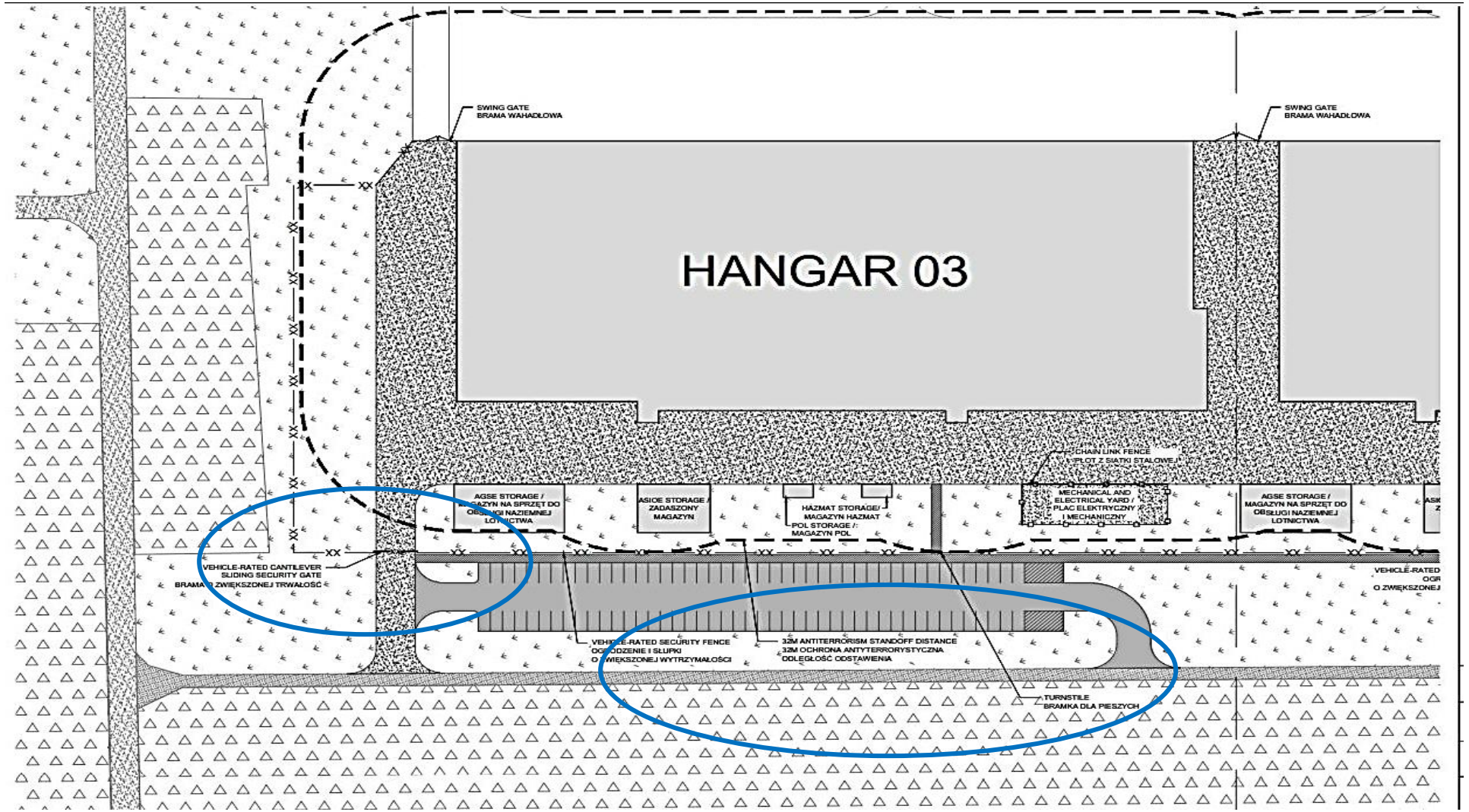
AE Scope of work Requirements

- **ATFP Site Plan – Provide a site plan clearly showing standoff distances, unobstructed space, active and passive barriers in accordance with antiterrorism requirements. (this is a separate drawing) (requirements from UFC 4-010-01 2013, kept as best practice also as part of AE scope of work)**
- **ATFP Compliance narrative;**
  - **All documents required to demonstrate compliance with UFC 4-010-01 and HQ USEUCOM AT OPORD (currently 23-01)**
  - **Narratives of how each applicable standard is met**
  - **Applicable explosive weights and levels of protection**
  - **Standoff distances provided, the unobstructed space, to include active and passive barrier systems must be clearly shown on an ATFP site plan**
  - **Blast resistant window system supporting structure calculations or test results**
  - **Building element dynamic analysis and design calculations for exterior wall and roof construction per UFC 4-010-01 and USEUCOM AT OPORD**
  - **Progressive collapse calculations (where applicable)**

AE Scope of work typical issues

- No or inadequate ATFP compliance narrative in design analysis report
- No or inadequate ATFP site plan in design package
- ATFP Charrette decisions and agreements not transferred into concept design
- No or inadequate consideration of USEUCOM AT OPORD
- No consideration of DBT as it relates to UFC 4-010-01
- Incomplete Window specs (performance, load, technical requirements
- New window support at walls specified without support calculations of existing systems

Example ATFP Site Plan



AE standards example

6.3 Design Basis Threat (DBT Analysis)

The Design Basis Threat analysis (DBT) was provided by USACE, refer to Appendix ATFP1 DBT Analysis in response to RFI# #28 (Appendix G2). This document defines the level of protection for this project and provides additional guidance on compliance with ATFP requirements. The Level of Protection is the minimum as per FRAGORD 001 for all inhabited buildings occupied by more than 50 people (LLOP) and the threat assessment does not generate any protections above minimum standards.

The answers to RFI# #28 specifically identified the following design strategies to be addressed.

- Forced Entry
- Visual Surveillance
- Acoustic Eavesdropping

6.4 Required Standards

The purpose of this chapter is to analyze and demonstrate the compliance of each of the standards in UFC 4-010-01.

The C2F Building 28 is considered to be an inhabited facility and will comply with UFC 4-010-01 Standards. In addition, the design will comply with the U.S. Europe Command Operation Order (OPORD) 18-11 and FRAGORD 001. Compliance with Appendix B of UFC 4-010-01 will be deemed as compliance with USCOM's OPORD and FRAGORD, therefore Standards 1, 2, 3, 4, 10, and 12 will be superseded by Appendix B.

Additional notes on ATFP to demonstrate the compliance of each of the standards in UFC 4-010-01 are presented below.

6.4.1 Standard 1: Standoff distances

The standoff distances only apply to distances to installation perimeters for new constructions that are required to comply with these standards. The facilities are placed at least 50m from the installation perimeter.

It is foreseen in the design a second security perimeter delimited by active and passive barriers to impede the access to unauthorized vehicles. This perimeter will consist of surface mounted bollards with shallow foundations and drop arms.

Other solutions have been studied such as building a foundation wall, but this solution requires a deep foundation (over 2 meters deep). Since there are existing utilities underneath the passive barriers, surface mounted bollards have been chosen.

Please note that the vehicle barriers (passive and active) have not been properly coordinated with the site utilities due to the lack of available information and the selection of these barriers may vary as more information is received and coordination with civil layout is done.

AE standards example

6.4.5 Standard 5: Parking beneath buildings or on rooftops

No parking beneath the buildings or on the rooftop is expected to be included in the design proposal; therefore, this standard does not apply.

6.4.6 Standard 6: Progressive collapse resistance

As buildings of three or more stories are subject to greater risk of progressive collapse, and the facility is foreseen to have four stories, they must comply with this standard that is further developed in Chapter 8. However, the Standard 6 requirement was removed from the Scope of Work during the Design Charrette Meeting Report Item 6.1.5.

6.4.7 Standard 7: Structural isolation

Structural isolation will be applied to the new Elevator and Stairwell additions to Building 28 only. Therefore, this requirement is met.

6.4.8 Standard 8: Building overhangs and breezeways

No building overhangs or breezeways are expected to be included in the design proposal; therefore, this standard does not apply.

6.4.9 Standard 9: Exterior masonry walls

Unreinforced masonry walls are prohibited for the exterior walls of new construction required to comply with these standards. For this reason, the exterior walls of the building will have cast in place concrete structure for elevator and stairwells in Building 28.

6.4.10 Standard 10: Glazing

As stated in previous chapter, compliance with Appendix B of UFC 4-010-01 will be deemed as compliance with USCOM's OPORD and FRAGORD, therefore Standard 10 is superseded by B-3.1 of UFC 4-010-01.

A standoff distance of 16 and 30 meters is to be considered for an explosive weight II when specifying new ATFP compliant windows. To minimize hazards from flying debris from windows, the following provisions for glazing, framing, connections, and supporting structural elements for all new and existing buildings for which there is an identified explosive threat, must be applied. These provisions apply to window systems at all standoff distances. The specific requirements below will result in window and skylight systems that provide for effective hazard mitigation. These provisions allow for design by dynamic analysis, testing, or the ASTM F 2248 design approach as described in the paragraphs below:

Dynamic Analysis:

Any of the glazing, framing members, connections, and supporting structural elements may be designed using dynamic analysis to prove the window or skylight systems will provide performance equivalent to or better than the hazard rating associated with the applicable level of protection established in the project requirements and described in Table B-1 of the UFC 4-010-01. Refer to (Appendix ATFP3) for further information regarding windows calculations and dynamic Analysis.

Testing:

Window and skylight systems may be dynamically tested to demonstrate performance equivalent to or better than the hazard rating associated with the applicable level of protection as indicated in Table B-1 of the UFC 4-010-01. Testing should include the entire window or skylight system, including connections, and should be in accordance with ASTM F 1642 with hazard ratings in accordance with ASTM F 2912.

AE standards example

6.4.17 Standard 17: Mail room and loading dock ventilation

No enclosed mail rooms or loading docks are foreseen and, therefore, this standard does not apply.

6.4.18 Standard 18: Emergency air distribution shutoff

This standard applies to both existing buildings and new buildings. A centralized emergency shutoff switch for the HVAC system is to be provided in the design, as required by this standard.

6.4.19 Standard 19: Equipment bracing

Requirement met. All overhead utilities and other fixtures weighing 14 kilograms or more (excluding distributed systems such as piping networks that collectively exceed that weight) are to be fixed using either rigid or flexible systems to minimize the likelihood that they will fall and injure building occupants. All equipment mountings are to be designed to resist forces of 0.5 times the equipment weight in any horizontal direction and 1.5 times the equipment weight in the downward direction.

6.4.20 Standard 20: Under building access

No under building access (crawl spaces, utility tunnels or similar) is expected to be included in the current design .

6.4.21 Standard 21: Mass notification

Requirement met. A mass notification system (MNS) compliant with Standard 21 is to be included in the design proposal and described in the Fire Safety report. The MNS is integrated as part of the Fire Alarm and Life Safety Systems. The system will include LED Signage and further instructions stated in the ECB 2018-17 "New Requirement for Visual Notification for Mass Notification Systems".

6.4.22 Antiterrorism measures for new and existing buildings

Appendix B of UFC 4-010-01 applies when a specific threat has been identified for the location based on UFC 4-020-01 or Service, Agency, or Geographic Combatant Command guidance.

These best practices are a strategy for site planning and designing facilities to protect against stationary vehicle bombs and hand delivered devices.

Standoff distance should be coupled with appropriate building hardening to provide the necessary level of protection to DoD personnel as described in Table C-1 through Table C-4

6.4.22.1 Recommendation 1: Vehicle access points

This recommendation establishes that vehicle access points are to be limited to the minimum. The ADP indicates a Row of Passive Barriers to create a "Pedestrian Campus" as shown on the ATFP Site Plan. Three Active Barriers allow authorized access to the "Pedestrian Campus" from vehicles already on the 14th GSU. military base having accessed through the Main Gate (southern). The Secondary Gate (northern) would be a VIP/Authorized access point onto the "Pedestrian Campus".

The Design Charrette Meeting raised an issue if the HN would assume responsibility for the Placement and Construction of the Passive/Active Barriers due to a significant amount of HN utility projects to be executed. The 65% Design Package identifies the line of barriers and achieves standoff distances.

6.4.22.2 Recommendation 2: High speed vehicle approaches

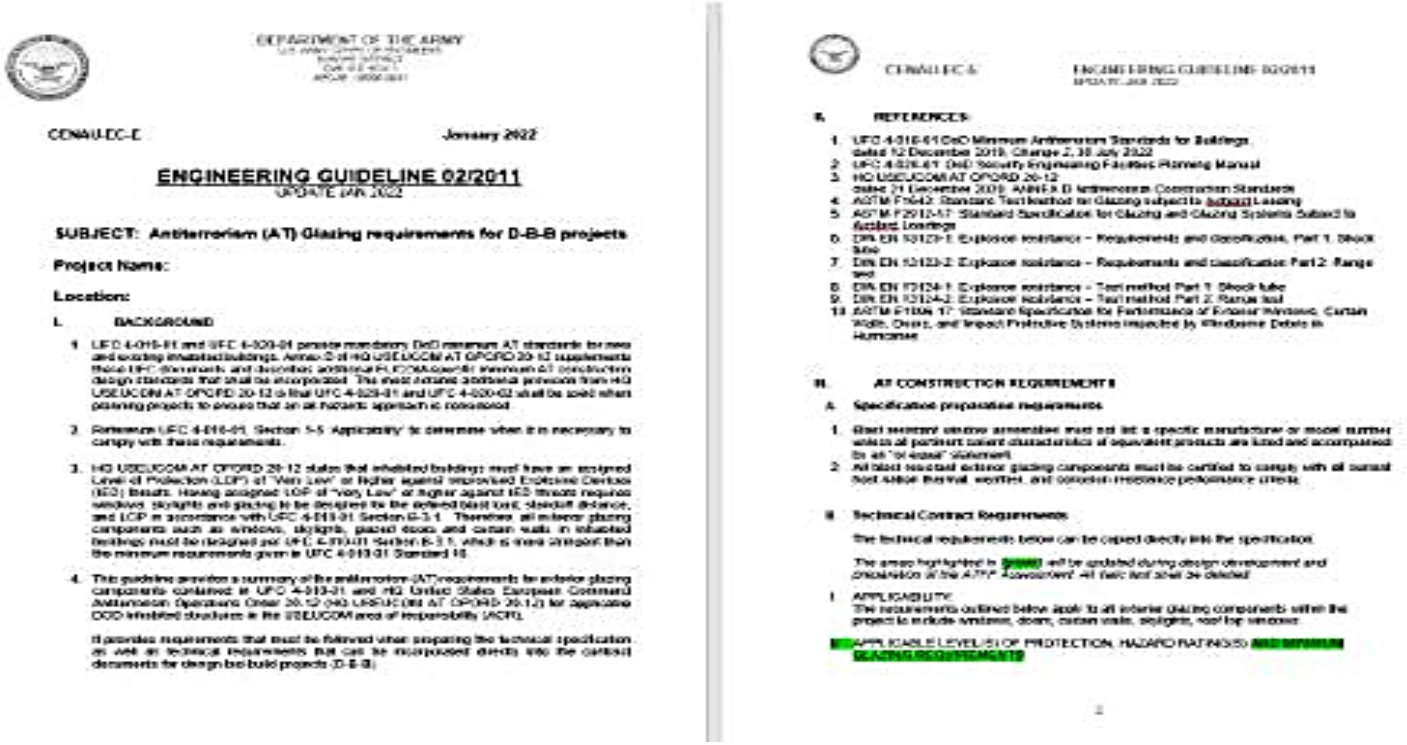
To follow this recommendation, unobstructed vehicle approaches that create direct paths to buildings are to be avoided.

The vehicle approach from the Main Gate (southern) will have a direct line of approach to the first line of barriers, including the active barrier, between Buildings 11 and 10, hence this barrier is crash-rated at M50/K12. The other Active Barriers will also have direct vehicle approach (Buildings 10 – 28) and

Glazing requirements

USACE EUROPE DISTRICT- ATFP ENGINEERING GUIDELINE

02-2011 AT Glazing Requirements for D-B-B projects - JAN 2022



DEPARTMENT OF THE ARMY

CENAU-EC-E January 2022

ENGINEERING GUIDELINE 02/2011
UPDATE JAN 2022

SUBJECT: Antiterrorism (AT) Glazing requirements for D-B-B projects

Project Name:

Location:

I. BACKGROUND

1. UFC 4-010-01 and UFC 4-020-01 provide mandatory DoD minimum AT standards for new and existing inhabited buildings. Annex D of HQ USEUCOM AT OPORD 20-12 supplements these UFC documents and describes additional HQ USEUCOM AT minimum AT construction design standards that shall be incorporated. The most notable supplemental provision from HQ USEUCOM AT OPORD 20-12 is that UFC 4-020-01 and UFC 4-020-02 shall be used when planning projects to ensure that an all hazards approach is considered.

2. Reference UFC 4-010-01, Section 1-5 "Applicability" to determine when it is necessary to comply with these requirements.

3. HQ USEUCOM AT OPORD 20-12 states that inhabited buildings must have an assigned Level of Protection (LOP) of "Very Low" or higher against improvised Explosive Devices (IED) threats. Having assigned LOP of "Very Low" or higher against IED threats requires windows, skylights and glazing to be designed to the defined blast load, standoff distance, and LOP in accordance with UFC 4-010-01 Section D-3.1. Therefore, all exterior glazing components such as windows, skylights, glazed doors and curtain walls in inhabited buildings must be designed per UFC 4-010-01 "Section D-3.1, which is more stringent than the minimum requirements given in UFC 4-010-01 Standard 16.

4. This guideline provides a summary of the antiterrorism (AT) requirements for exterior glazing components contained in UFC 4-010-01 and HQ United States European Command Antiterrorism Operations Order 20-12 (HQ USEUCOM AT OPORD 20-12) for applicable DOD inhabited structures in the USEUCOM area of responsibility (AOR).

It provides requirements that must be followed when preparing the technical specification as well as technical requirements that can be incorporated directly into the contract documents for design bid build projects (D-B-B).

CENAU-EC-E ENGINEERING GUIDELINE 02/2011

II. REFERENCES

1. UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings dated 12 December 2018, Change 2, 28 July 2022
2. UFC 4-020-01 DoD Security Engineering Facilities Planning Manual
3. HQ USEUCOM AT OPORD 20-12 dated 21 December 2020, ANNEX D Antiterrorism Construction Standards
4. ASTM F1642: Standard Test Method for Glazing subject to Airblast Loading
5. ASTM F2912-17: Standard Specification for Glazing and Glazing Systems Subject to Airblast Loadings
6. DIN EN 13123-1: Explosion resistance – Requirements and classification, Part 1: Shock tube
7. DIN EN 13123-2: Explosion resistance – Requirements and classification Part 2: Range test
8. DIN EN 13124-1: Explosion resistance – Test method Part 1: Shock tube
9. DIN EN 13124-2: Explosion resistance – Test method Part 2: Range test
10. ASTM F1233-17: Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes

III. AT CONSTRUCTION REQUIREMENTS

A. Specification preparation requirements

1. Blast resistant window assemblies must not list a specific manufacturer or model number unless all pertinent salient characteristics of equivalent products are listed and accompanied by an "or equal" statement.
2. All blast resistant exterior glazing components must be certified to comply with all ballistic, blast, thermal, weather, and corrosion resistance performance criteria.

B. Technical Contract Requirements

The technical requirements below can be copied directly into the specification.

The areas highlighted in [redacted] will be updated during design development and presentation of the ATFP Assessment. All italic text shall be deleted.

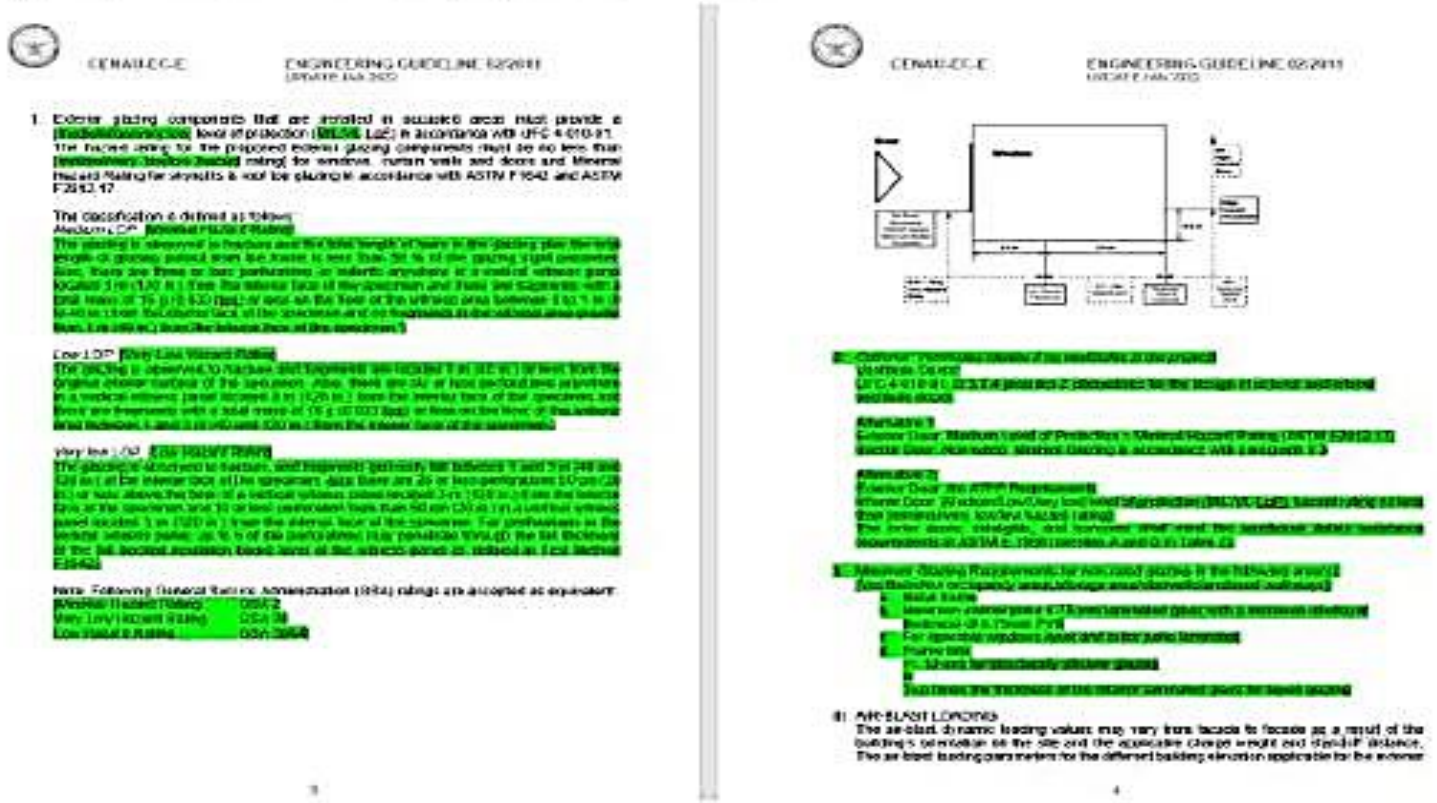
1. APPLICABILITY
The requirements outlined below apply to all exterior glazing components within the project to include windows, doors, curtain walls, skylights, roof top windows.

[redacted] APPLICABLE LEVEL(S) OF PROTECTION, HAZARD RATING(S) AND MINIMUM GLAZING REQUIREMENTS

Glazing requirements

USACE EUROPE DISTRICT- ATFP ENGINEERING GUIDELINE

02-2011 AT Glazing Requirements for D-B-B projects - JAN 2022



Summary

- Antiterrorism Requirement Sources
- Minimum AT Standards
- Additional Requirement Sources
- Facility Design Basis Threat
- Additional Considerations
- AE SOW Requirements
- Resources

References and AT Engineer Resources

- **Engineering References**
  - **USAREUR-AF Antiterrorism Engineering SharePoint page: https://armyeitaas.sharepoint-mil.us/sites/USAREUR-AF_G34-AT/SitePages/Engineering.aspx**
  - **Whole Building Design Guide, Unified Facilities Criteria Library**
  - **U.S. Army Corps of Engineers, Protective Design Center**
    - **Software (facility DBT, blast analysis, structural member and windows analysis), Engineering Technical Letters & Reports, UFCs, Std. Drawings, DoD Anti-Ram Vehicle Barrier List**
  - **FEMA 426, Ref. Manual to Mitigate Potential Terrorist Attacks Against Buildings**
  - **USEUCOM Antiterrorism Operations Order 23-01**
  - **US Army Europe Regulation 525-13 Antiterrorism**
  - **Joint Forward Operations Base, Protection Handbook (GTA 90-01-011)**
  - **Department of Homeland Security, Interagency Security Committee Standards**
  - **U.S. Department of State, Foreign Affairs Manuals and Handbooks**
- **Threat Information**
  - **West Point, Combatting Terrorism Center**
  - **University of Maryland, Global Terrorism Database**
  - **Terrorism Research Initiative, Perspectives on Terrorism**
  - **Department of Homeland Security, National Terrorism Advisory System**

Support and POCs

- **Resources and Capabilities**
- **Links**
  - **(NIPR) USAREUR-AF Antiterrorism Engineering:**
  - https://armyeitaas.sharepoint-mil.us/sites/USAREUR-AF_G34-AT/SitePages/Engineering.aspx
  - **(NIPR) USAREUR-AF AT:**
  - https://armyeitaas.sharepoint-mil.us/sites/USAREUR-AF_G34-AT/SitePages/AT.aspx
  - **(SIPR) USAREUR-AF AT**
  - **(SIPR) USAREUR-AF G2X Terrorist Threat Assessments**
  - **(SIPR) JRAMP**
- **USAREUR-AF G34, Antiterrorism Branch**
  - **Scott Turygan, P.E., PMP; 314-537-3131; Scott.D.Turygan.civ@army.mil**
  - **MAJ Chris Haberkamp; 314-537-3689; Christopher.M.Haberkamp.mil@army.mil**

QUESTIONS & FEEDBACK