

# UNIFIED FACILITIES CRITERIA (UFC)

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## DOD BUILDING CODE



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**UNIFIED FACILITIES CRITERIA (UFC)**

**DOD BUILDING CODE**

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER CENTER

Record of Changes (changes are indicated by \1\ ... /1/)

<b>Change No.</b>	<b>Date</b>	<b>Location</b>
1		1-5.1, 1-5.2, 1-5.3 revised terms; 1-6.2 clarified use of IRC; 1-6.3.1.1 corrections to core UFC list: delete 3-310-04, 3-540-02, 3-230-03; add 3-301-02, 3-190-06; 2-16 update reference; 4-14 revised fifth bullet; Appendix C References: various updates.

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**This UFC supersedes UFC 1-200-01, dated 20 June 2016, with Change 2, dated 01 Nov 2018.**

## FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007G and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with [USD \(AT&L\) Memorandum](#) dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate. All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA). Therefore, the acquisition team must ensure compliance with the most stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable.

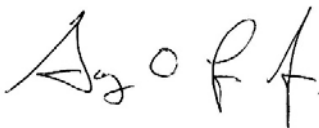
UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Center (AFCEC) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale may be sent to the respective DoD working group by submitting a Criteria Change Request (CCR) via the Internet site listed below.

UFC are effective upon issuance and are distributed only in electronic media from the following source:

- Whole Building Design Guide web site <http://www.wbdg.org/ffc/dod>.

Refer to UFC 1-200-01, *DoD Building Code*, for implementation of new issuances on projects.

### AUTHORIZED BY:



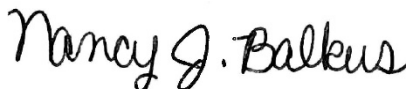
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**UNIFIED FACILITIES CRITERIA (UFC)  
REVISION SUMMARY SHEET**

**Document:** UFC 1-200-01, *DoD BUILDING CODE*

**Superseding:** UFC 1-200-01, *DoD BUILDING CODE (GENERAL BUILDING REQUIREMENTS)*, dated 20 June 2016, with Change 2, dated 01 Nov 2018

**Description:** This update to UFC 1-200-01 represents the Tri-Services effort to bring uniformity to the military use of non-government model building codes. Technical representatives of each of the \1\three/1/ Services developed requirements in this document to implement the use of the 2018 IBC and 2018 IEBC consistent with the scope of current military requirements and procedures. This revision of UFC 1-200-01 contains modifications in the following areas:

- DoD criteria guidance approved as late as 1 September 2019 has been cited.

**Reasons for Document:**

- This document replaces 2015 IBC with the use of 2018 IBC revised and replaced in 2018 by the ICC.
- This document replaces 2015 IEBC with the use of 2018 IEBC revised and replaced in 2018 by the ICC.

**Impact:**

- This document reduces interpretation and ambiguity that could lead to design and construction conflicts.
- Costs of DoD facilities are not expected to increase as a result of this revision.

**Unification Issues:**

- There are no unification issues.

## TABLE OF CONTENTS

<b>CHAPTER 1 INTRODUCTION</b> .....	<b>1</b>
<b>1-1 BACKGROUND.</b> .....	<b>1</b>
<b>1-2 PURPOSE AND SCOPE</b> .....	<b>1</b>
<b>1-3 APPLICABILITY</b> .....	<b>1</b>
1-3.1 Implementation, Administration, and Enforcement. ....	1
1-3.2 Levels of Construction .....	2
1-3.3 Waivers and Exemptions. ....	2
1-3.4 UFC Hierarchy. ....	2
1-3.5 Facilities in Support of Military Operations.....	3
<b>1-4 OVERARCHING CRITERIA OR REGULATORY REQUIREMENTS</b> .....	<b>4</b>
1-4.1 Vending Facilities for the Blind.....	4
1-4.2 Nursing and Lactation Rooms.....	4
<b>1-5 UFC AUTHORITIES.</b> .....	<b>4</b>
1-5.1 Engineering Senior Executive Panel.....	4
1-5.2 Component Technical Representative. ....	4
1-5.3 Building Official / Authority Having Jurisdiction. ....	5
<b>1-6 GENERAL BUILDING REQUIREMENTS.</b> .....	<b>5</b>
1-6.1 Building Codes.....	5
1-6.2 Referenced Codes and Substitutions. ....	5
1-6.3 Other Criteria. ....	6
<b>1-7 CYBERSECURITY.</b> .....	<b>10</b>
<b>1-8 NON-GOVERNMENT STANDARD MODIFICATIONS.</b> .....	<b>10</b>
<b>1-9 GLOSSARY</b> .....	<b>11</b>
<b>1-10 REFERENCES.</b> .....	<b>11</b>
<b>CHAPTER 2 MODIFICATIONS TO IBC</b> .....	<b>13</b>
<b>2-1 CHAPTER 1 – SCOPE AND ADMINISTRATION [SUPPLEMENT].</b> .....	<b>13</b>
2-1.1 Section 101 – GENERAL.....	13
2-1.2 Section 102 – APPLICABILITY.....	13
2-1.3 Section 103 – DEPARTMENT OF BUILDING SAFETY [Deletion]. ....	13
2-1.4 Section 104 – DUTIES AND POWERS OF BUILDING OFFICIAL. ....	13
2-1.5 Section 105 – PERMITS [Deletion].....	15

2-1.6	Section 106 – FLOOR AND ROOF DESIGN LOADS [Deletion].....	15
2-1.7	Section 107 – SUBMITTAL DOCUMENTS [Deletion].....	15
2-1.8	Section 108 – TEMPORARY STRUCTURES AND USES [Deletion]. .	15
2-1.9	Section 109 – FEES [Deletion]. .....	15
2-1.10	Section 111 – CERTIFICATE OF OCCUPANCY [Deletion].....	15
2-1.11	Section 113 – BOARD OF APPEALS [Deletion].....	15
2-1.12	Section 114 – VIOLATIONS [Deletion]. .....	15
2-1.13	Section 115 – STOP WORK ORDER [Deletion]. .....	15
2-1.14	Section 116 – UNSAFE STRUCTURES AND EQUIPMENT [Deletion].....	15
<b>2-2</b>	<b>CHAPTER 2 – DEFINITIONS [SUPPLEMENT].....</b>	<b>15</b>
<b>2-3</b>	<b>CHAPTER 3 – USE AND OCCUPANCY CLASSIFICATION [SUPPLEMENT].....</b>	<b>16</b>
<b>2-4</b>	<b>CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY [SUPPLEMENT].....</b>	<b>16</b>
<b>2-5</b>	<b>CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS [SUPPLEMENT].....</b>	<b>16</b>
2-5.1	Section 506 – BUILDING AREA .....	16
<b>2-6</b>	<b>CHAPTER 6 – TYPES OF CONSTRUCTION [SUPPLEMENT]. .....</b>	<b>16</b>
<b>2-7</b>	<b>CHAPTER 7 – FIRE AND SMOKE PROTECTION FEATURES [SUPPLEMENT].....</b>	<b>17</b>
<b>2-8</b>	<b>CHAPTER 8 – INTERIOR FINISHES [REPLACEMENT]. .....</b>	<b>17</b>
<b>2-9</b>	<b>CHAPTER 9 – FIRE PROTECTION SYSTEMS [REPLACEMENT]. .....</b>	<b>17</b>
<b>2-10</b>	<b>CHAPTER 10 – MEANS OF EGRESS [REPLACEMENT].....</b>	<b>17</b>
<b>2-11</b>	<b>CHAPTER 11 – ACCESSIBILITY [REPLACEMENT].....</b>	<b>17</b>
<b>2-12</b>	<b>CHAPTER 12 – INTERIOR ENVIRONMENT [SUPPLEMENT]. .....</b>	<b>17</b>
2-12.1	Section 1203 – TEMPERATURE CONTROL. ....	18
2-12.2	Section 1206 – SOUND TRANSMISSION.....	18
2-12.3	Section 1207 – INTERIOR SPACE DIMENSIONS.....	18
<b>2-13</b>	<b>CHAPTER 13 – ENERGY EFFICIENCY [REPLACEMENT].....</b>	<b>18</b>
<b>2-14</b>	<b>CHAPTER 14 – EXTERIOR WALLS [SUPPLEMENT].....</b>	<b>18</b>
2-14.1	Section 1402 – PERFORMANCE REQUIREMENTS. ....	19
2-14.2	Section 1406 – METAL COMPOSITE MATERIALS (MCM). ....	19
<b>2-15</b>	<b>CHAPTER 15 – ROOF ASSEMBLIES AND ROOFTOP STRUCTURES [SUPPLEMENT]. .....</b>	<b>19</b>

<b>2-16</b>	<b>CHAPTER 16 – STRUCTURAL DESIGN [SUPPLEMENT]</b> .....	<b>19</b>
2-16.1	Section 1604 – GENERAL DESIGN REQUIREMENTS. ....	19
2-16.2	Section 1612 – FLOOD LOADS [Supplement]. ....	19
<b>2-17</b>	<b>CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS [SUPPLEMENT]</b> .....	<b>20</b>
2-17.1	Section 1701 – GENERAL.....	20
2-17.2	Section 1704 – SPECIAL INSPECTIONS AND TESTS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATION.....	20
<b>2-18</b>	<b>CHAPTER 18 – SOILS AND FOUNDATIONS [SUPPLEMENT]</b> .....	<b>20</b>
2-18.1	Section 1804 – EXCAVATION, GRADING, AND FILL. ....	20
<b>2-19</b>	<b>CHAPTER 19 – CONCRETE [SUPPLEMENT]</b> .....	<b>21</b>
<b>2-20</b>	<b>CHAPTER 20 – ALUMINUM [SUPPLEMENT]</b> . ....	<b>21</b>
<b>2-21</b>	<b>CHAPTER 21 – MASONRY [SUPPLEMENT]</b> . ....	<b>21</b>
<b>2-22</b>	<b>CHAPTER 22 – STEEL [SUPPLEMENT]</b> . ....	<b>21</b>
<b>2-23</b>	<b>CHAPTER 23 – WOOD [SUPPLEMENT]</b> . ....	<b>21</b>
2-23.1	Section 2301.4 Composite Wood [Addition].....	21
2-23.2	Section 2303 – MINIMUM STANDARDS AND QUALITY.....	21
<b>2-24</b>	<b>CHAPTER 24 – GLASS AND GLAZING [SUPPLEMENT]</b> .....	<b>21</b>
<b>2-25</b>	<b>CHAPTER 25 – GYPSUM BOARD, GYPSUM PANEL PRODUCTS, AND PLASTER.</b> ....	<b>22</b>
<b>2-26</b>	<b>CHAPTER 26 – PLASTIC [SUPPLEMENT]</b> . ....	<b>22</b>
2-26.1	Section 2603 – FOAM PLASTIC INSULATION .....	22
<b>2-27</b>	<b>CHAPTER 27 – ELECTRICAL [SUPPLEMENT]</b> .....	<b>22</b>
<b>2-28</b>	<b>CHAPTER 28 – MECHANICAL SYSTEMS [SUPPLEMENT]</b> .....	<b>23</b>
<b>2-29</b>	<b>CHAPTER 29 – PLUMBING SYSTEMS [SUPPLEMENT]</b> .....	<b>23</b>
<b>2-30</b>	<b>CHAPTER 30 – ELEVATORS AND CONVEYING SYSTEMS [SUPPLEMENT]</b> .....	<b>23</b>
<b>2-31</b>	<b>CHAPTER 31 – SPECIAL CONSTRUCTION.</b> ....	<b>23</b>
<b>2-32</b>	<b>CHAPTER 32 – ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY.</b> ....	<b>24</b>
<b>2-33</b>	<b>CHAPTER 33 – SAFEGUARDS DURING CONSTRUCTION [SUPPLEMENT]</b> .....	<b>24</b>
<b>2-34</b>	<b>CHAPTER 34 – RESERVED [DELETION]</b> . ....	<b>24</b>
<b>2-35</b>	<b>CHAPTER 35 – REFERENCED STANDARDS [SUPPLEMENT]</b> .....	<b>24</b>

<b>2-36</b>	<b>APPENDICES [DELETION].</b> .....	<b>24</b>
<b>CHAPTER 3 MODIFICATIONS TO IEBC</b> .....		<b>25</b>
<b>3-1</b>	<b>CHAPTER 1 – SCOPE AND ADMINISTRATION.</b> .....	<b>25</b>
3-1.1	Section 101 – GENERAL.....	25
3-1.2	Section 102 – APPLICABILITY.....	25
3-1.3	Section 103 – DEPARTMENT OF BUILDING SAFETY [Deletion]. ....	25
3-1.4	Section 104 – DUTIES AND POWERS OF CODE OFFICIAL [Deletion].....	25
3-1.5	Section 105 – PERMITS [Deletion].....	25
3-1.6	Section 106 – CONSTRUCTION DOCUMENTS [Deletion]. .....	25
3-1.7	Section 107 – TEMPORARY STRUCTURES AND USES [Deletion]. .	25
3-1.8	Section 108 – FEES [Deletion]. .....	25
3-1.9	Section 110 – CERTIFICATE OF OCCUPANCY [Deletion].....	25
3-1.10	Section 112 – BOARD OF APPEALS [Deletion].....	25
3-1.11	Section 113 – VIOLATIONS [Deletion]. .....	25
3-1.12	Section 114 – STOP WORK ORDER [Deletion]. .....	25
3-1.13	Section 115 – UNSAFE BUILDINGS AND EQUIPMENT [Deletion]. ...	25
3-1.14	Section 116 – EMERGENCY MEASURES [Deletion].....	25
3-1.15	Section 117 – DEMOLITION [Deletion]. .....	26
<b>3-2</b>	<b>CHAPTER 2 – DEFINITIONS [SUPPLEMENT].</b> .....	<b>26</b>
<b>3-3</b>	<b>CHAPTER 3 – PROVISIONS FOR ALL COMPLIANCE METHODS [SUPPLEMENT].</b> .....	<b>26</b>
<b>3-4</b>	<b>CHAPTER 4 – REPAIRS [SUPPLEMENT].</b> .....	<b>26</b>
3-4.1	Section 401 – GENERAL.....	26
<b>3-5</b>	<b>CHAPTER 5 – PRESCRIPTIVE COMPLIANCE METHOD [SUPPLEMENT].</b> .....	<b>26</b>
3-5.1	Section 502 – ADDITIONS. ....	26
3-5.2	Section 503 – ALTERATIONS. ....	27
3-5.3	Section 507 – HISTORIC BUILDINGS. ....	27
<b>3-6</b>	<b>CHAPTER 6 – CLASSIFICATION OF WORK [SUPPLEMENT].</b> .....	<b>27</b>
<b>3-7</b>	<b>CHAPTER 7 – ALTERATIONS – LEVEL 1 [SUPPLEMENT].</b> .....	<b>27</b>
3-7.1	Section 701 – GENERAL.....	27
<b>3-8</b>	<b>CHAPTER 8 – ALTERATIONS – LEVEL 2 [SUPPLEMENT].</b> .....	<b>27</b>
<b>3-9</b>	<b>CHAPTER 9 – ALTERATIONS – LEVEL 3 [SUPPLEMENT].</b> .....	<b>27</b>



3-10	CHAPTER 10 – CHANGE OF OCCUPANCY [SUPPLEMENT].	28
3-11	CHAPTER 11 – ADDITIONS [SUPPLEMENT].	28
3-12	CHAPTER 12 – HISTORIC BUILDINGS [SUPPLEMENT].	28
3-12.1	Section 1201 – GENERAL.	28
3-13	CHAPTER 13 – PERFORMANCE COMPLIANCE METHODS [SUPPLEMENT].	28
3-13.1	Section 1301 – GENERAL.	28
3-13.2	Section 1301 – GENERAL.	28
3-14	CHAPTER 14 – RELOCATED OR MOVED BUILDINGS [SUPPLEMENT].	29
3-15	CHAPTER 15 – CONSTRUCTION SAFEGUARDS [SUPPLEMENT].	29
3-16	CHAPTER 16 – REFERENCED STANDARDS [SUPPLEMENT].	29
3-17	APPENDICES [DELETION].	29
3-18	RESOURCES [DELETION].	29
<b>CHAPTER 4 CORROSION PREVENTION AND CONTROL</b>		<b>31</b>
4-1	<b>GENERAL.</b>	<b>31</b>
4-1.1	Definition of Corrosion.	31
4-1.2	Identification of Project Environmental Severity Classification.	31
4-1.3	Corrosion Prone Locations.	31
4-1.4	Requirements for Corrosion Prone Locations.	32
4-1.5	Design Geometries.	32
4-1.6	Environmental Severity Factors.	33
4-1.7	System, Component, and Material Design Requirements.	33
<b>APPENDIX A ESC FOR DOD LOCATIONS</b>		<b>37</b>
<b>APPENDIX B GLOSSARY</b>		<b>59</b>
B-1	<b>ACRONYMS</b>	<b>59</b>
B-2	<b>DEFINITION OF TERMS</b>	<b>62</b>
<b>APPENDIX C REFERENCES</b>		<b>63</b>

## TABLES

Table 1-1	Policy Related to Physical Security	9
Table A-1	ESC for United States, Its Territories and Possessions	37
Table A-2	ESC for Outside United States, Its Territories and Possessions	54

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## CHAPTER 1 INTRODUCTION

### 1-1 BACKGROUND.

Unified Facilities Criteria (UFC) provide common requirements across DoD for safety, sustainability, durability, and functionality for DoD facilities. UFC incorporate a combination of consensus building codes, DoD-defined technical and user requirements, and applicable statutory and regulatory requirements.

### 1-2 PURPOSE AND SCOPE

UFC 1-200-01 represents the foundational document of the UFC program in providing general building requirements and overarching criteria, establishing the use of consensus building codes and standards, establishing criteria implementation rules and protocols (including core UFC), and identifying unique military criteria. In accordance with the authority in MIL-STD-3007G, UFC are prepared by DoD committees called Discipline Working Group (DWG), and are published by the Military Services under the authority of the Engineering Senior Executive Panel (ESEP), comprised of the following:

- Deputy Assistant Secretary of Defense (Facilities Management) Office of the Assistant Secretary of Defense (Sustainment)
- Chief, Engineering and Construction Division, Headquarters United States Army Corps of Engineers (HQ USACE)
- Chief Engineer, Naval Facilities Engineering Command (NAVFAC)
- Department of the Air Force, Deputy Director of Civil Engineers DCS Logistics, Engineering & Force Protection

### 1-3 APPLICABILITY.

This UFC applies to the planning, design, construction, sustainment, restoration, and modernization of DoD-owned facilities. It is applicable to all methods of project delivery and levels of construction as defined below. For facilities supporting military operations see Paragraph 1-3.5.

#### 1-3.1 Implementation, Administration, and Enforcement.

UFC are effective upon issuance for projects as follows:

- Design-Bid-Build projects that have not proceeded beyond 35% design completion.
- Design-Build projects that have not proceeded beyond date of Request for Proposal (RFP) issuance. When an RFP is issued in multiple phases or steps use the date of the last phase of the RFP issuance.

- Projects that have a delay, either planned or unintentional, of more than 18 months between design completion and the solicitation of offers for construction must be re-evaluated to determine if any design revision is necessary due to changes in criteria (including codes and standards) or site infrastructure (for example, water supply for fixed fire suppression systems, water for hose stream allowances, or fire department vehicle access). Note: The evaluation must also include retroactive requirements that have been included in the new editions of the criteria.

## **1-3.2 Levels of Construction**

### **1-3.2.1 Permanent Construction.**

Buildings and facilities designed and constructed to serve a life expectancy of more than 25 years.

### **1-3.2.2 Semi-permanent Construction.**

Buildings and facilities designed and constructed to serve a life expectancy of more than 5 years, but less than 25 years. This construction level is typically only used for support of military operations. Expediency of construction and material availability may be a factor. Facilities are intended to have a more enduring presence with operational characteristics and functional performance similar to permanent construction. Maintainability of finishes and systems must be commensurate with facility life expectancy and available maintenance capabilities. A moderate level of energy and water efficiency must be considered.

### **1-3.2.3 Temporary Construction.**

Buildings and facilities designed and constructed to serve a life expectancy of five years or less using low cost construction. Temporary construction typically cannot be economically converted to a higher level of construction. Temporary facilities have limited flexibility for conversion and re-use.

## **1-3.3 Waivers and Exemptions.**

A waiver provides authority to deviate from a criteria requirement for a specific period, typically 12 months. An exemption provides authority to deviate from a requirement indefinitely. Refer to MIL-STD-3007 for the waiver and exemption request and approval process. When additional coordination for waivers or exemptions is required due to a regulatory or functional authority, the affected criteria document will include additional information.

## **1-3.4 UFC Hierarchy.**

UFC 1-200-01 is the overarching document for buildings and facilities used by DoD. UFC 1-200-01 directs the use of the International Building Code® (IBC), the International Existing Building Code® (IEBC), Core UFC, other UFC as applicable to the

building, facility, structure, or system, and Facility Criteria (FC) as they pertain to the applicable DoD Component.

#### **1-3.4.1 UFC 3- Series.**

The UFC 3- Series and FC 3- Series (simply referred to as UFC 3- Series) provide discipline specific criteria requirements for the various engineering disciplines.

- If conflict occurs between a UFC 3- Series and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence.
- If conflict occurs between two UFC within the UFC 3- Series, the requirements of the UFC that is more detailed pertaining to that specific building, facility, structure, or system take precedence.

#### **1-3.4.2 UFC 4- Series.**

The UFC 4- Series and FC 4- Series (simply referred to as UFC 4- Series) provide requirements for multi-disciplinary and facility-specific design.

- If conflict occurs between a UFC 4- Series facility type UFC and UFC 3-600-01, the requirements of UFC 4- Series facility type UFC take precedence.
- If conflict occurs between two UFC within the UFC 4- Series, the requirements of the UFC that is more detailed pertaining to that specific building, facility, structure, or system take precedence.
- If conflict occurs between a UFC 4- Series and a UFC 3- Series, the requirements of the UFC 4- Series take precedence.

#### **1-3.5 Facilities in Support of Military Operations.**

The following UFC are intended for use outside of the United States and its territories and possessions. In addition, Joint Publication (JP) 3-0, Joint Operations, provides typical examples of military operations where uses of these UFC are appropriate.

##### **1-3.5.1 UFC 1-201-01.**

Use UFC 1-201-01 for design of non-permanent facilities constructed for use by DoD personnel in support of military operations.

##### **1-3.5.2 UFC 1-201-02.**

Use UFC 1-201-02 to assess existing facilities for life safety and habitability for use by DoD personnel in support of military operations.

##### **1-3.5.3 UFC 1-202-01.**

Use UFC 1-202-01 for design of host nation facilities that support military operations.

**1-4 OVERARCHING CRITERIA OR REGULATORY REQUIREMENTS.**

Design and Construction must comply with Public Laws (P.L.), Executive Orders (E.O.), Code of Federal Regulations (CFR), Department of Defense Instructions (DoDI), Department of Defense Manuals (DoDM), and Department of Defense Directives (DoDD) or other higher authority documents as applicable.

**1-4.1 Vending Facilities for the Blind.**

Verify with the using activity the requirement to provide blind-operated vending facilities in compliance with the Randolph-Sheppard Act and DoDI 1125.03. This requirement generally applies in buildings that are over 15,000 square feet (1,400 square meters) that will contain over 100 employees, but may also apply in other situations at the discretion of the using activity.

**1-4.2 Nursing and Lactation Rooms.**

Military installations and DoD facilities should provide a private space for nursing mothers as required by the Office of the Undersecretary of Defense (OUSD) Memorandum, Department-Wide Policy for Nursing and Lactation Rooms. Use the Office of Personnel Management (OPM) Guide for Establishing a Federal Nursing Mother's Program to implement best practices for creating a successful nursing mother's program, consistent with the demand of the workplace and the needs of the mission. This space may not be a bathroom, and must be shielded from view and free from intrusion of others. A nursing mother's space must be functional, with a private space with a place to sit and a flat surface, other than the floor, to place the breast pump and other supplies. Although there are no size or permanency requirements, this space must provide access to electricity for the use of a breast pump, as well as good lighting, a comfortable temperature, and proper ventilation; and be near a source of hot and cold running water. In addition, comply with any command-specific policy applicable to this requirement or applicable to the establishment of a working mothers program within the facility.

**1-5 UFC AUTHORITIES.**

**1-5.1 ESEP.**

\1\ The ESEP represents the senior technical facilities engineering leadership within each Military Department as identified in paragraph 1-2 and exercises exclusive authority to issue UFC and FC, and to approve waivers and exemptions thereof.

**1-5.2 Component Technical Representative (CTR).**

The CTR represents the project sponsor or customers and exercises authority to establish project requirements on behalf of the user or facility owner in the following cases:

- When the Building Official / Authority Having Jurisdiction (BO/AHJ) has identified more than one option satisfies criteria and allows user preference, such as for different system choices that offer varying levels of performance, durability, compatibility, compatibility with other systems, esthetics, or the like. This authority would not apply where in conflict with requirements for installation-wide networks, architectural standards, or similar standards established by the installation or Component with jurisdiction of the installation.
- When the BO/AHJ has identified an approved equivalent standard that satisfies the intent of criteria (see Chapter 2, paragraph 104.11), such as a material or component meeting a host-nation standard in a foreign location.
- When the BO/AHJ has identified a design option is not specifically addressed in criteria.

### **1-5.3 Building Official / Authority Having Jurisdiction (BO/AHJ).**

The terms “Building Official” or BO and “Authority Having Jurisdiction” or AHJ used in the UFC or FC criteria, reference codes, and standards are synonymous. The BO/AHJ represents the DoD design and construction agent responsible for accomplishing the project, and exercises authority to interpret and apply criteria to work in progress, evaluate compliance with criteria, and accept finished work that is in compliance. This authority does not include approval of waivers or exemptions to criteria. /1/

## **1-6 GENERAL BUILDING REQUIREMENTS.**

### **1-6.1 Building Codes.**

Use 2018 IBC and 2018 IEBC as follows:

- Use IBC, including all published errata, as the building code for DoD, except as modified by this UFC, other UFC, and FC. Where a paragraph in any chapter of IBC references a paragraph in a different chapter, the referenced chapter shall be modified as described in CHAPTER 2.
- Use IEBC, including all published errata, except as modified by this UFC, other UFC, and FC. Where a paragraph in any chapter of IEBC references a paragraph in a different chapter, the referenced chapter shall be modified as described in CHAPTER 3.

### **1-6.2 Referenced Codes and Substitutions.**

Treat references in the DoD Building Code (see Paragraph 2-1.1) and the DoD Existing Building Code (see Paragraph 3-1.1) to other codes as follows:

- References to the International Fuel Gas Code® (IFGC) are references to NFPA 54 (ANSI Z223.1) and NFPA 58.

- References to the International Mechanical Code® (IMC) are references to UFC 3-410-01, which cites IMC.
- References to the International Plumbing Code® (IPC) are references to UFC 3-420-01, which cites IPC.
- Dismiss references to the International Property Maintenance Code® (IPMC), as IPMC is not adopted.
- References to the International Fire Code® (IFC) are references to UFC 3-600-01, which cites NFPA 1.
- References to the International Energy Conservation Code® (IECC) are references to UFC 1-200-02, which cites ASHRAE 90.1 and ASHRAE189.1.
- References to NFPA 70, National Electrical Code® (NEC) are references to UFC 3-501-01, which cites NFPA 70.
- References to the International Residential Code® (IRC) are references to the IRC. See also UFC 3-600-01. /1/

### **1-6.3 Other Criteria.**

In addition to IBC as modified in CHAPTER 2, and IEBC as modified in CHAPTER 3, comply with the following criteria.

#### **1-6.3.1 UFC.**

Comply with the UFC (latest version, refer to Paragraph 1-3.1) as noted herein.

##### **1-6.3.1.1 Core UFC.**

Core UFC are criteria that provide requirements for the majority of traditional building systems that are prevalent on DoD facility construction projects. Core UFC also identify additional criteria such as Antiterrorism, High Performance, and Sustainable Building requirements mandated by law and policy. Comply with the Core UFC listed here, and other UFC identified in APPENDIX C as they are applicable.

- 1-200-02, High Performance and Sustainable Building Requirements
- 3-101-01, Architecture
- 3-110-03, Roofing
- 3-120-10, Interior Design \1\
- 3-190-06, Protective Coatings and Paint /1/
- 3-201-01, Civil Engineering
- 3-201-02, Landscape Architecture
- 3-210-10, Low Impact Development



- 3-220-01, Geotechnical Engineering
- 3-230-01, Water Storage and Distribution \1\ /1/
- 3-240-01, Wastewater Collection
- 3-301-01, Structural Engineering \1\ /1/
- 3-401-01, Mechanical Engineering
- 3-410-01, Heating, Ventilating and Air Conditioning
- 3-420-01, Plumbing Systems
- 3-490-06, Elevators
- 3-501-01, Electrical Engineering
- 3-520-01, Interior Electrical Systems
- 3-530-01, Interior and Exterior Lighting Systems and Controls \1\ /1/
- 3-550-01, Exterior Electrical Power Distribution
- 3-560-01, Electrical Safety, O&M
- 3-580-01, Telecommunications Building Cabling Systems Planning and Design
- 3-600-01, Fire Protection Engineering for Facilities
- 4-010-01, DoD Minimum Antiterrorism Standards for Buildings
- 4-010-06, Cybersecurity of Facility-Related Control Systems
- 4-021-01, Design and O&M: Mass Notification Systems

#### **1-6.3.1.2 Other UFC.**

In addition to the “Core UFC”, comply with other UFC as applicable to the system, structure, or facility type defined in the scope of the construction project.

#### **1-6.3.2 FC.**

The designation "FC" is for criteria that are not applicable to all DoD Components. For example: FC 4-721-10N "Navy and Marine Corps Unaccompanied Housing" has a final "N" designation because it is used by the Navy, including its Component, the U.S. Marine Corps. FC are applicable only to the DOD Component in the title and are intended for use with unified technical requirements published in UFC. Comply with the FC for the designated facility type and the DoD Component.

#### **1-6.3.3 Specification Requirements.**

Use Unified Facilities Guide Specifications (UFGS) for all projects, including Design-Build submittals, and in accordance with UFC 1-300-02. Download, use, and edit the most current UFGS database available from the Whole Building Design Guide website

at [http://www.wbdg.org/ccb/browse\\_cat.php?c=3](http://www.wbdg.org/ccb/browse_cat.php?c=3). Modify and edit the UFGS as necessary to suit the work required by the specific project, including editing for metric or inch-pound and to reflect the latest proven technology, materials, and methods for the project. Follow Order of Precedence requirements for each Government Design Agent on use of Regional, Agency, Unified, and Other guide specifications. Other guide specifications may be used as a basis for information when not available in the UFGS. Provide these specifications in UFGS format and modified to meet the requirements of UFC 1-300-02.

#### **1-6.3.4 Other Military Criteria.**

Military criteria other than those listed in this UFC may be applicable to specific types of structures, building systems, or building occupancies. Such structures, systems, or buildings must meet the additional requirements of applicable military criteria.

##### **1-6.3.4.1 Explosive Safety.**

This document does not contain requirements for explosives safety. Facilities that involve DoD Ammunition and Explosives (AE) storage, handling, maintenance, manufacture or disposal, as well as facilities within the explosives safety quantity distance (ESQD) arcs of AE facilities, must comply with the requirements found in DoDM 6055.09, as well as implementing Service criteria found in DA PAM 385-64 (Army), NAVSEA OP 5 (Navy and Marine Corps), and AFMAN 91-201 (Air Force). DoD facilities exposed to potential explosion effects from AE belonging to other nations are also required to meet DoD and Service explosives safety criteria.

Closely coordinate the planning and design of new facilities, and occupation, repair, alteration, and restoration of existing AE-related facilities, or other facilities within ESQD arcs with knowledgeable explosives safety professionals in theater, or with the Services' Explosives Safety Centers. Coordinate as early as possible in the planning and design process to avoid issues or problems and to ensure compliance.

Facility construction or use within ESQD arcs requires review for compliance with explosives safety criteria, and must have either an approved explosives safety site plan or an approved explosives safety deviation. Refer to the DoD Service documents mentioned above for further applicable guidance.

##### **1-6.3.4.2 Facility Systems Safety.**

Safety is an important component of maintaining and operating DoD facilities. Consider safety during design. Incorporate a hazards review into the regular design review process to ensure systems safety has been considered at the earliest phases of project development to reduce and mitigate unintentional maintenance and operational hazards. Army projects will incorporate the safety engineering practices delineated under the Facilities Systems Safety (FASS) program as prescribed under AR PAM 385-16, System Safety Management Guide, to the extent practicable and feasible. Air Force projects will incorporate the safety engineering practices delineated in AFMAN 91-203, Air Force Consolidated Occupational Safety Instruction, to the extent practicable and

feasible. For Navy the Designer of Record must follow the concepts from the most current ANSI/ASSP Z590.3, Prevention through Design: Guidelines for Addressing Occupational Hazards and Risks in Design and Redesign Processes. All DoD facilities must comply with DoDI 6055.01 and applicable Occupational Safety and Health Administration (OSHA) safety and health standards.

**1-6.3.4.3 Antiterrorism.**

Antiterrorism is defined as defensive measures used to reduce the vulnerability of individuals and property to terrorist acts. UFC 4-010-01 sets the minimum requirements for DoD buildings, and the Geographic Combatant Commander Antiterrorism Construction Standards address unique requirements specific to their area of responsibility. Refer to UFC 4-010-01 and the Geographic Combatant Commander Antiterrorism Construction Standards for the minimum antiterrorism requirements.

**1-6.3.4.4 Physical Security.**

Physical security is defined as that part of security concerned with physical measures designed and placed to safeguard personnel; to prevent unauthorized access to installations, equipment, material and documents, and to safeguard them against espionage, sabotage, damage, and theft. Many buildings require some level of physical security. When required, integrate physical measures into the site, building, room, or area as applicable. DoD requirements for physical security related to specific assets are documented in DoD publications, directives, manuals, and instructions. The Services have related documents that implement the DoD policy for the Services. The main DoD documents that contain the physical security requirements for the protection of specific DoD assets are shown in Table 1-1. This does not include the policy documents associated with the protection of nuclear and chemical assets.

**Table 1-1 Policy Related to Physical Security**

Asset	Policy and Documents
Classified Information	DoDM 5200.01, Volume 3, <i>DoD Information Security Program: Protection of Classified Information</i> ; <a href="https://www.esd.whs.mil/DD/DoD-Issuances/">https://www.esd.whs.mil/DD/DoD-Issuances/</a>
Sensitive Compartmented Information (SCI)	DoDM 5105.21-Volume 1, <i>Sensitive Compartmented Information (SCI) Administrative Security Manual: Administration of Information and Information Systems Security</i> ; <a href="https://www.esd.whs.mil/DD/DoD-Issuances/">https://www.esd.whs.mil/DD/DoD-Issuances/</a>  DoDM 5105.21-Volume 2, <i>Sensitive Compartmented Information (SCI) Administrative Security Manual: Administration of Physical Security, Visitor Control, and Technical Security</i> ; <a href="https://www.esd.whs.mil/DD/DoD-Issuances/">https://www.esd.whs.mil/DD/DoD-Issuances/</a>  UFC 4-010-05, <i>Sensitive Compartmented Information Facilities Planning, Design, and Construction</i> ;

Asset	Policy and Documents
	<a href="https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-4-010-05/">https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-4-010-05/</a>
Special Access Program (SAP) Information	DoDM 5205.07, Volume 3, <i>DoD Special Access Program (SAP) Security Manual: Physical Security</i> ; <a href="https://www.esd.whs.mil/DD/DoD-Issuances/">https://www.esd.whs.mil/DD/DoD-Issuances/</a>
Arms, Ammunition, and Explosives	DoDM 5100.76-M, <i>Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives (AA&amp;E)</i> ; <a href="https://www.esd.whs.mil/DD/DoD-Issuances/">https://www.esd.whs.mil/DD/DoD-Issuances/</a>
Weapons Systems and Platforms	DoD 5200.08-R, <i>Physical Security Program</i> ; <a href="https://www.esd.whs.mil/DD/DoD-Issuances/">https://www.esd.whs.mil/DD/DoD-Issuances/</a>
Bulk Petroleum Products	
Communications Systems	
Controlled Inventory Items	

**1-6.3.4.5 Corrosion Prevention and Control Requirements.**

Use the requirements in CHAPTER 4 in conjunction with other UFC requirements to design for durability and provide for a comprehensive corrosion prevention and control strategy.

**1-7 CYBERSECURITY.**

Plan, design, acquire, execute, and maintain all control systems (including systems separate from a utility monitoring and control system) in accordance with UFC 4-010-06 and as required by individual Service Implementation Policy. Implement cybersecurity requirements to mitigate vulnerabilities to all DoD real property facility-related control systems to a level that is acceptable to the System Owner and Authorizing Official. UFC 4-010-06 provides requirements for integrating cybersecurity into the design and construction of control systems.

**1-8 NON-GOVERNMENT STANDARD MODIFICATIONS.**

CHAPTER 2 modifies IBC and is organized by the chapter of IBC that each section modifies. CHAPTER 3 modifies IEBC and is organized by the chapter of IEBC that each section modifies. The modifications are one of four actions, according to the following legend:

- [Addition] – Add new section, including new section number, not shown in IBC or IEBC.
- [Deletion] – Delete referenced IBC or IEBC section.
- [Replacement] – Delete referenced IBC or IEBC section or noted portion and replace it with the narrative shown.
- [Supplement] – Add narrative shown as a supplement to the narrative shown in the referenced section of IBC or IEBC.

The section modifiers are identified at the end of the paragraph title. Limited commentary has been added in the chapters. Section designations for such commentary are preceded by a “[C]”, and the commentary narrative is shaded.

## **1-9 GLOSSARY.**

APPENDIX B contains acronyms, abbreviations, and terms.

## **1-10 REFERENCES.**

APPENDIX C contains a list of references used in this document. Unless otherwise specified, use the most recent edition of the referenced publication.

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## CHAPTER 2 MODIFICATIONS TO IBC

### 2-1 CHAPTER 1 – SCOPE AND ADMINISTRATION [SUPPLEMENT].

Use IBC Chapter 1 except as modified below.

#### 2-1.1 Section 101 – GENERAL.

##### 101.1 Title [Replacement]

These regulations shall be known as the DoD Building Code, hereinafter referred to as “this code.”

##### 101.4 Referenced codes [Supplement]

Refer to Paragraph 1-6.2 for referenced codes.

#### 2-1.2 Section 102 – APPLICABILITY.

##### 102.1 General [Replacement]

Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Refer to Paragraph 1-3.4 for hierarchy of UFC.

##### 102.2 Other Laws [Replacement]

The provisions of this code shall not be deemed to nullify any provisions of local, state, or federal law. In overseas locations the SOFA, HNFA, and in some instances, BIA may govern requirements.

##### 102.4 Referenced codes and standards [Supplement]

Refer to Paragraph 1-6.2 and Paragraph 1-6.3 for referenced codes and criteria.

#### 2-1.3 Section 103 – DEPARTMENT OF BUILDING SAFETY [Deletion].

#### 2-1.4 Section 104 – DUTIES AND POWERS OF BUILDING OFFICIAL.

##### 104.1 General [Replacement]

The Building Official/AHJ is a person authorized and directed to enforce the provisions of this code, UFC, or FC. They have the authority to render interpretations of this code, UFC, or FC and to clarify the application of the provisions. Such interpretations will be in compliance with the intent and purpose of this code, UFC, or FC and will not have the effect of waiving or exempting requirements specifically provided for in this code, UFC, or FC. For waiver and exemption process and authority refer to Section 104.10 Waivers and exemptions.

#### **104.10 Waivers and exemptions [Replacement]**

Where there are practical difficulties involved in carrying out the provisions of this code, UFC, or FC; the Building Official/AHJ shall first find that special individual case or reason makes the strict letter of this code, UFC, or FC impractical resulting in noncompliance with requirements or an increased risk to: health, accessibility, life and fire safety, structural requirements, or operational requirements. Such cases will be treated as a waiver or exemption. Waivers and exemptions to specific UFC or FC requirements are approved by the Service's Chief Engineer, Engineering Senior Executive Panel signature authority for the Service. Refer to MIL-STD 3007 for waivers and exemption definitions and for specific requirements for approval.

#### **[C] 104.10 Waivers and exemptions [Supplement]**

Avoid requests for waivers and exemptions if possible. A criteria- or code-compliant engineering solution for the facility should be the objective versus a waiver or exemption request. UFC and FC requirements are intended to address code-compliant facility requirements; life, health and safety requirements; property loss prevention; lowest lifecycle cost; and facility operational requirements. For issues dealing with life, health, and safety, cost is not a valid reason to grant a waiver or exemption. Waiving or exempting requirements typically results in increased risk to safety or property loss, increased operational risk, or poor return on investment.

#### **104.11 Alternative materials, design and methods of construction and equipment [Replacement]**

The provisions of this code, UFC, or FC are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design, or method of construction may be approved where the Building Official/AHJ finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, UFC, or FC, and that the material, method, or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code, UFC, or FC in quality, strength, effectiveness, fire resistance, durability, and safety. When the alternative material, design, or method of construction is not approved, the Building Official/AHJ will respond in writing, stating the reasons why the alternative was not approved.

##### **104.11.1 Research reports [Replacement]**

Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, UFC, or FC, shall consist of valid research reports from approved sources.



### **104.11.2 Tests [Replacement]**

Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the Building Official/AHJ shall have the authority to require tests as evidence of compliance to be made without expense to the government. Test methods shall be as specified in this code, UFC, or FC or by other recognized test standards. In the absence of recognized and accepted test methods, the Building Official/AHJ shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the Building Official/AHJ.

### **104.11.3 Overseas locations [Addition]**

In overseas locations where the SOFA, HNFA, OEBGD, or BIA may govern requirements, the Building Official/AHJ will review the situation and determine what, if any, measures are appropriate to take to compensate for measures not allowed by the host nation or that present practical difficulties involved in carrying out the provisions. Measures taken must not lessen quality, strength, effectiveness, fire resistance, durability, and safety. In these instances, formal exemptions are not required. The details of action granting alternative materials, design and methods of construction and equipment will be recorded and entered in the project document files by the Building Official/AHJ. Note that alternative materials, design and methods of construction and equipment must not be misconstrued as a waiver or exemption. Waivers and exemptions are addressed in 104.10.

- 2-1.5           Section 105 – PERMITS [Deletion].**
- 2-1.6           Section 106 – FLOOR AND ROOF DESIGN LOADS [Deletion].**
- 2-1.7           Section 107 – SUBMITTAL DOCUMENTS [Deletion].**
- 2-1.8           Section 108 – TEMPORARY STRUCTURES AND USES [Deletion].**
- 2-1.9           Section 109 – FEES [Deletion].**
- 2-1.10          Section 111 – CERTIFICATE OF OCCUPANCY [Deletion].**
- 2-1.11          Section 113 – BOARD OF APPEALS [Deletion].**
- 2-1.12          Section 114 – VIOLATIONS [Deletion].**
- 2-1.13          Section 115 – STOP WORK ORDER [Deletion].**
- 2-1.14          Section 116 – UNSAFE STRUCTURES AND EQUIPMENT [Deletion].**
- 2-2             CHAPTER 2 – DEFINITIONS [SUPPLEMENT].**

Use IBC Chapter 2 except as modified by APPENDIX B.

**[C] CHAPTER 2 – DEFINITIONS [SUPPLEMENT]**

Definitions in IBC Chapter 2 apply to terms used in the model code and are not intended to replace definitions and terms in military and other referenced documents. It is essential that the code defined meaning be known to understand the intent and correctly interpret the code.

**2-3 CHAPTER 3 – USE AND OCCUPANCY CLASSIFICATION [SUPPLEMENT].**

Use IBC Chapter 3 except as modified by UFC 3-600-01.

**2-4 CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY [SUPPLEMENT].**

Use IBC Chapter 4 only as specifically referenced by UFC 3-600-01.

**2-5 CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS [SUPPLEMENT].**

Use IBC Chapter 5 except as modified below and by UFC 3-600-01.

**[C] CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS [SUPPLEMENT]**

UFC 3-600-01 gives direction concerning the requirements for fire-rated partitions. Note that the building area for funding and planning purposes is calculated differently than the method defined in IBC Chapter 5 for code compliance calculation.

**2-5.1 Section 506 – BUILDING AREA**

**2-5.1.1 Table 506.2 – Allowable Area Factor in Square Feet.**

**Table 506.2: Cell at I-3, S1, Type IIA [Replacement]**

60,000.

**Table 506.2: Cell at I-4, S1, Type IA [Replacement]**

242,000.

**2-6 CHAPTER 6 – TYPES OF CONSTRUCTION [SUPPLEMENT].**

Use IBC Chapter 6 except as modified by UFC 3-600-01.

**2-7 CHAPTER 7 – FIRE AND SMOKE PROTECTION FEATURES [SUPPLEMENT].**

Use IBC Chapter 7 except as modified by UFC 3-600-01.

[C] CHAPTER 7 – FIRE AND SMOKE PROTECTION FEATURES [SUPPLEMENT]

UFC 3-600-01 gives direction concerning the requirements for fire-rated partitions.

**2-8 CHAPTER 8 – INTERIOR FINISHES [REPLACEMENT].**

Use UFC 3-600-01 and UFC 3-120-10.

**2-9 CHAPTER 9 – FIRE PROTECTION SYSTEMS [REPLACEMENT].**

Use UFC 3-600-01.

**2-10 CHAPTER 10 – MEANS OF EGRESS [REPLACEMENT].**

Use UFC 3-600-01. Use IBC Chapter 10 when specifically referenced by US Access Board, Architectural Barriers Act (ABA) Standards and as referenced by UFC 3-600-01.

[C] CHAPTER 10 – MEANS OF EGRESS [REPLACEMENT]

UFC 3-600-01 references IBC Chapter 10 for requirements for stair to roof access. Where the ABA Standards reference the previous versions of IBC, the applicable requirements of the 2018 IBC are acceptable.

**2-11 CHAPTER 11 – ACCESSIBILITY [REPLACEMENT].**

Use the ABA Standards and the special provisions of the DoD Deputy Secretary of Defense Memorandum, Subject: Access for People with Disabilities, October 31, 2008.

[C] CHAPTER 11 – ACCESSIBILITY [REPLACEMENT]

Refer to APPENDIX C for a link to the ABA Standards and the DoD policy memorandum.

**2-12 CHAPTER 12 – INTERIOR ENVIRONMENT [SUPPLEMENT].**

Use IBC Chapter 12 except as modified below.

[C] CHAPTER 12 – INTERIOR ENVIRONMENT [SUPPLEMENT]

Refer to other Federal guidance and UFC for additional interior space requirements for ventilation, lighting, acoustics, and other environmental characteristics.

**2-12.1 Section 1203 – TEMPERATURE CONTROL.**

**1203.1 Equipment and systems [Replacement]**

Use the applicable UFC and individual military service standards for temperature control criteria.

**1203.1 Equipment and systems, Exceptions [Deletion]**

**2-12.2 Section 1206 – SOUND TRANSMISSION.**

**1206.2 Airborne sound [Replacement]**

Use UFC 3-101-01 and UFC 3-120-10. For Navy and Marine Corps Unaccompanied Housing facilities, only use FC 4-721-10N.

**1206.3 Structure-borne sound [Replacement]**

Use UFC 3-101-01 and UFC 3-120-10. For Navy and Marine Corps Unaccompanied Housing facilities, only use FC 4-721-10N.

**2-12.3 Section 1207 – INTERIOR SPACE DIMENSIONS.**

**1207.3 Room area [Replacement]**

Use UFC 3-101-01 and UFC 3-120-10. For Navy and Marine Corps Unaccompanied Housing facilities, only use FC 4-721-10N.

**1207.4 Efficiency dwelling units [Replacement]**

Use UFC 3-101-01 and UFC 3-120-10. For Navy and Marine Corps Unaccompanied Housing facilities, only use FC 4-721-10N.

**2-13 CHAPTER 13 – ENERGY EFFICIENCY [REPLACEMENT].**

Use UFC 1-200-02.

**2-14 CHAPTER 14 – EXTERIOR WALLS [SUPPLEMENT].**

Use IBC Chapter 14 except as modified below.

**2-14.1 Section 1402 – PERFORMANCE REQUIREMENTS.**

**1402.5 Vertical and lateral flame propagation [Deletion]**

**2-14.2 Section 1406 – METAL COMPOSITE MATERIALS (MCM).**

**2-14.2.1 1406.10 Type I, II, III and IV construction.**

**1406.10.4 Full-scale tests [Replacement]**

The MCM system must be tested in accordance with, and comply with, the acceptance criteria of NFPA 285. Perform testing on the MCM system with the MCM in the maximum thickness intended for use. Where noncombustible materials or combustible materials permitted by Sections 603, 1405, or UFC 3-600-01 differ from assembly to assembly or within an assembly, multiple tests shall not be required.

**1406.10.4 Full-scale tests, Exception [Addition]**

Exception: The MCM system is not required to be tested in accordance with, and comply with, acceptance criteria of NFPA 285 in buildings equipped throughout with an automatic sprinkler system in accordance with UFC 3-600-01.

**2-15 CHAPTER 15 – ROOF ASSEMBLIES AND ROOFTOP STRUCTURES [SUPPLEMENT].**

Use IBC Chapter 15 except as modified by UFC 3-110-03 and UFC 3-600-01.

**2-16 CHAPTER 16 – STRUCTURAL DESIGN [SUPPLEMENT].**

Use IBC Chapter 16 except as modified below and by UFC 3-301-01 and 3-301-02 /1/.

**2-16.1 Section 1604 – GENERAL DESIGN REQUIREMENTS.**

**1604.11 Fall prevention and protection [Addition]**

Provide fall protection as required by UFC 3-101-01. The anchorages and the structural elements that support these anchorages must meet the requirements of Section 1607.10.4, as modified by UFC 3-301-01. Where fall protection is required in the vicinity of weight-handling equipment, prevent conflicts between the weight-handling equipment and the fall protection measure.

**2-16.2 Section 1612 – FLOOD LOADS [Supplement].**

Use Section 1612 except as modified by UFC 3-201-01 /1/

**1612.3 Establishment of flood hazard areas [Supplement]**

Comply with UFC 3-201-01.

**2-17 CHAPTER 17 – SPECIAL INSPECTIONS AND TESTS [SUPPLEMENT].**

Use IBC Chapter 17 except as modified below and by UFC 3-220-01, UFC 3-301-01, and UFC 3-600-01.

**2-17.1 Section 1701 – GENERAL.**

**1701.1 - Scope [Supplement]**

Contractual relationships and the composition of the architect / engineer / construction (AEC) team differ from that contemplated by the language of 2018 IBC, when doing DoD construction. When performing design or construction using typical methods for in-house design, AE design, and contracting for construction, 2018 IBC/ASCE 7-16 terms of Authority Having Jurisdiction and Building Official are to be as defined in UFC 1-200-01.

[C] 1701.1 - Scope [Supplement]

The context of the IBC terms “permit”, “permit application”, “permit applicant”, and “owner” must be modified for DoD projects. Refer to Paragraph 1-5. DoD functions as the building department/jurisdiction and the AHJ functions as the building official. When DoD advertises a project, the building permit is effectively implied/granted. However, the overall project may still require other permits related to site storm water, air quality, demolition disposal, etc.

**2-17.2 Section 1704 – SPECIAL INSPECTIONS AND TESTS, CONTRACTOR RESPONSIBILITY AND STRUCTURAL OBSERVATION.**

**1704.2 Special inspections and tests [Replacement]**

The contractor must employ one or more approved agencies to perform inspections during construction on the types of work listed under Section 1705. These inspections are in addition to the inspections defined in Section 110. The inspecting agency must provide reports of the special inspections directly to the government.

**2-18 CHAPTER 18 – SOILS AND FOUNDATIONS [SUPPLEMENT].**

Use IBC Chapter 18 except as modified below and by UFC 3-201-01, UFC 3-220-01, and UFC 3-301-01.

**2-18.1 Section 1804 – EXCAVATION, GRADING, AND FILL.**

**1804.4 Site grading [Supplement]**

Ensure that the grading and associated storm water runoff do not adversely affect surrounding sites. Establish finished floor elevations a minimum of 6 inches (150 mm) above finished grade at the perimeter of the building and provide site grading in

accordance with UFC 3-201-01. Comply with UFC 3-600-01 for design of entrances and exits from buildings.

**1804.4 Site grading, Exception 1 [Deletion]**

**1804.4 Site grading, Exception 2 [Replacement]**

Impervious surfaces shall be permitted to be sloped less than 2 percent where the surface is a door landing or ramp that is required to comply with UFC 3-600-01.

**2-19 CHAPTER 19 – CONCRETE [SUPPLEMENT].**

Use IBC Chapter 19 except as modified by UFC 1-200-02 and UFC 3-301-01.

**2-20 CHAPTER 20 – ALUMINUM [SUPPLEMENT].**

Use IBC Chapter 20 except for aluminum use in Heating, Ventilation, and Air Conditioning (HVAC) systems. For aluminum use in HVAC systems, use UFC 3-410-01.

**2-21 CHAPTER 21 – MASONRY [SUPPLEMENT].**

Use IBC Chapter 21 except as modified by UFC 3-301-01.

**2-22 CHAPTER 22 – STEEL [SUPPLEMENT].**

Use IBC Chapter 22 except as modified by UFC 3-301-01.

**2-23 CHAPTER 23 – WOOD [SUPPLEMENT].**

Use IBC Chapter 23 except as modified below and by UFC 3-301-01.

**2-23.1 Section 2301.4 Composite Wood [Addition]**

All composite wood containing materials (e.g. Plywood, Particle Board, MDF) must be specified to be moisture resistant or exterior glue grade.

**2-23.2 Section 2303 – MINIMUM STANDARDS AND QUALITY.**

**2-23.2.1 2303.2 Fire-retardant-treated wood.**

**2303.2.10 Roof construction [Addition]**

Do not use fire-retardant-treated plywood in any part of the roof or roofing system.

**2-24 CHAPTER 24 – GLASS AND GLAZING [SUPPLEMENT].**

Use IBC Chapter 24 except as modified by UFC 4-010-01.

**2-25 CHAPTER 25 – GYPSUM BOARD, GYPSUM PANEL PRODUCTS, AND PLASTER.**

Use IBC Chapter 25.

**2-26 CHAPTER 26 – PLASTIC [SUPPLEMENT].**

Use IBC Chapter 26 except as modified below and by UFC 3-600-01.

**2-26.1 Section 2603 – FOAM PLASTIC INSULATION**

**2-26.1.1 2603.5 Exterior walls of buildings of any height.**

**2603.5.5 Vertical and lateral fire propagation [Replacement]**

Exterior wall assemblies must be tested in accordance with, and comply with, acceptance criteria of NFPA 285. Where noncombustible materials or combustible materials permitted by Sections 603, 1406, or UFC 3-600-01 differ from assembly to assembly or within an assembly, multiple tests shall not be required.

**2603.5.5 Vertical and lateral fire propagation, Exceptions [Replacement]**

Exceptions: Exterior wall assemblies are not required to be tested in accordance with, nor comply with, acceptance criteria of NFPA 285 where any of the following conditions are met:

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by a minimum of 1 inch (25 mm) thickness of masonry or concrete complying with either of the following:
  - 2.1. There is no air space between the insulation and the concrete or masonry; or
  - 2.2. The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum air space between the insulation and the concrete or masonry is not more than 1 inch (25 mm).
3. Buildings equipped throughout with an automatic sprinkler system in accordance with UFC 3-600-01.

**2-27 CHAPTER 27 – ELECTRICAL [SUPPLEMENT].**

Use IBC Chapter 27 except as modified below and by UFC 3-501-01.

- Use UFC 3-520-01 for interior electrical systems criteria.



- Use UFC 3-530-01 for interior and exterior lighting and controls criteria.
- Use UFC 3-540-01 for engine-driven generator criteria.
- Use UFC 3-550-01 for exterior power distribution systems criteria.
- Use UFC 3-560-01 for electrical safety and electrical Operations and Maintenance (O&M) criteria.
- Use UFC 3-580-01 for building telecommunications criteria.
- Use UFC 3-600-01 for fire protection criteria.
- Use UFC 4-021-01 for mass notification systems criteria.

**[C] CHAPTER 27 – ELECTRICAL [SUPPLEMENT].**

IBC references NFPA 70, NEC. In addition, IBC Chapter 27, Section 2702 EMERGENCY AND STANDBY POWER SYSTEMS, which addresses emergency and standby power requirements, references IFC. Per Paragraph 1-6.2, this must be considered a reference to UFC 3-600-01, which cites NFPA 1.

**2-28            CHAPTER 28 – MECHANICAL SYSTEMS [SUPPLEMENT].**

Use IBC Chapter 28 except as modified by UFC 3-401-01. Use UFC 3-600-01 for fire protection features for mechanical systems.

**[C] CHAPTER 28 – MECHANICAL SYSTEMS [SUPPLEMENT].**

IBC Chapter 28 provides references to IMC which has been modified by UFC 3-410-01. However, IFGC has not been adopted. The DoD uses NFPA 54 (ANSI Z223.1), National Fuel Gas Code, for the design and installation of fuel gas piping systems.

**2-29            CHAPTER 29 – PLUMBING SYSTEMS [SUPPLEMENT].**

Use IBC Chapter 29 except as modified by UFC 3-420-01.

**2-30            CHAPTER 30 – ELEVATORS AND CONVEYING SYSTEMS [SUPPLEMENT].**

Use IBC Chapter 30 except as modified by UFC 3-490-06 and UFC 3-600-01.

**2-31            CHAPTER 31 – SPECIAL CONSTRUCTION.**

Use IBC Chapter 31.

**2-32            CHAPTER 32 – ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY.**

Use IBC Chapter 32.

**2-33            CHAPTER 33 – SAFEGUARDS DURING CONSTRUCTION [SUPPLEMENT].**

Use IBC Chapter 33.

**2-34            CHAPTER 34 – RESERVED [DELETION].**

**2-35            CHAPTER 35 – REFERENCED STANDARDS [SUPPLEMENT].**

Use IBC Chapter 35 except as modified by Paragraph 1-6.2.

**2-36            APPENDICES [DELETION].**

## CHAPTER 3 MODIFICATIONS TO IEBC

### 3-1 CHAPTER 1 – SCOPE AND ADMINISTRATION.

Use IEBC Chapter 1 except as modified below.

#### 3-1.1 Section 101 – GENERAL.

##### 101.1 Title [Replacement]

These regulations shall be known as the DoD Existing Building Code, hereinafter referred to as “this code.”

#### 3-1.2 Section 102 – APPLICABILITY.

##### 102.1 General [Replacement]

Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Refer to Paragraph 1-3.4 for hierarchy of UFC.

##### 102.4 Referenced codes and standards [Supplement]

Refer to Paragraph 1-6.2 and Paragraph 1-6.3 for referenced codes and criteria.

#### 3-1.3 Section 103 – DEPARTMENT OF BUILDING SAFETY [Deletion].

#### 3-1.4 Section 104 – DUTIES AND POWERS OF CODE OFFICIAL [Deletion].

#### 3-1.5 Section 105 – PERMITS [Deletion].

#### 3-1.6 Section 106 – CONSTRUCTION DOCUMENTS [Deletion].

#### 3-1.7 Section 107 – TEMPORARY STRUCTURES AND USES [Deletion].

#### 3-1.8 Section 108 – FEES [Deletion].

#### 3-1.9 Section 110 – CERTIFICATE OF OCCUPANCY [Deletion].

#### 3-1.10 Section 112 – BOARD OF APPEALS [Deletion].

#### 3-1.11 Section 113 – VIOLATIONS [Deletion].

#### 3-1.12 Section 114 – STOP WORK ORDER [Deletion].

#### 3-1.13 Section 115 – UNSAFE BUILDINGS AND EQUIPMENT [Deletion].

#### 3-1.14 Section 116 – EMERGENCY MEASURES [Deletion].

**3-1.15 Section 117 – DEMOLITION [Deletion].**

**3-2 CHAPTER 2 – DEFINITIONS [SUPPLEMENT].**

Use IEBC Chapter 2 except as modified by APPENDIX A.

**[C] CHAPTER 2 – DEFINITIONS [SUPPLEMENT]**

Definitions in IEBC Chapter 2 apply to terms used in the model code and are not intended to replace definitions and terms in military documents. It is essential that the code defined meaning be known to understand the intent and correctly interpret the code.

**3-3 CHAPTER 3 – PROVISIONS FOR ALL COMPLIANCE METHODS [SUPPLEMENT].**

Use IEBC Chapter 3 except as modified by UFC 3-600-01.

**3-4 CHAPTER 4 – REPAIRS [SUPPLEMENT].**

Use IEBC Chapter 4 except as modified below and by UFC 3-600-01.

**3-4.1 Section 401 – GENERAL.**

**401.3 Flood hazard areas [Supplement]**

For rehabilitation work costing more than \$7.5 million to facilities already located within the 100-year flood plain, assess the vulnerability of mechanical and electrical subsystems to flood hazards and take necessary measures within the project to mitigate those vulnerabilities. Comply with OUSD Memorandum, Floodplain Management on Department of Defense Installations. This policy applies only to facilities on permanent installations and does not apply to leased space.

**3-5 CHAPTER 5 – PRESCRIPTIVE COMPLIANCE METHOD [SUPPLEMENT].**

Use IEBC Chapter 5 except as modified below and by UFC 3-301-01 and UFC 3-600-01.

**3-5.1 Section 502 – ADDITIONS.**

**502.3 Flood hazard areas [Supplement]**

For rehabilitation work costing more than \$7.5 million to facilities already located within the 100-year flood plain, assess the vulnerability of mechanical and electrical subsystems to flood hazards and take necessary measures within the project to mitigate those vulnerabilities. Comply with OUSD Memorandum, Floodplain Management on

Department of Defense Installations. This policy applies only to facilities on permanent installations and does not apply to leased space.

**3-5.2 Section 503 – ALTERATIONS.**

**503.2 Flood hazard areas [Supplement]**

For rehabilitation work costing more than \$7.5 million to facilities already located within the 100-year flood plain, assess the vulnerability of mechanical and electrical subsystems to flood hazards and take necessary measures within the project to mitigate those vulnerabilities. Comply with OUSD Memorandum, Floodplain Management on Department of Defense Installations. This policy applies only to facilities on permanent installations and does not apply to leased space.

**3-5.3 Section 507 – HISTORIC BUILDINGS.**

**507.3 Flood hazard areas [Supplement]**

For rehabilitation work costing more than \$7.5 million to facilities already located within the 100-year flood plain, assess the vulnerability of mechanical and electrical subsystems to flood hazards and take necessary measures within the project to mitigate those vulnerabilities. Comply with OUSD Memorandum, Floodplain Management on Department of Defense Installations. This policy applies only to facilities on permanent installations and does not apply to leased space.

**3-6 CHAPTER 6 – CLASSIFICATION OF WORK [SUPPLEMENT].**

Use IEBC Chapter 6 except as modified by UFC 3-600-01.

**3-7 CHAPTER 7 – ALTERATIONS – LEVEL 1 [SUPPLEMENT].**

Use IEBC Chapter 7 except as modified below and by UFC 3-600-01.

**3-7.1 Section 701 – GENERAL.**

**701.3 Flood hazard areas [Supplement]**

For rehabilitation work costing more than \$7.5 million to facilities already located within the 100-year flood plain, assess the vulnerability of mechanical and electrical subsystems to flood hazards and take necessary measures within the project to mitigate those vulnerabilities. Comply with OUSD Memorandum, Floodplain Management on Department of Defense Installations. This policy applies only to facilities on permanent installations and does not apply to leased space.

**3-8 CHAPTER 8 – ALTERATIONS – LEVEL 2 [SUPPLEMENT].**

Use IEBC Chapter 8 except as modified by UFC 3-600-01.

**3-9 CHAPTER 9 – ALTERATIONS – LEVEL 3 [SUPPLEMENT].**

Use IEBC Chapter 9 except as modified by UFC 3-600-01.

**3-10 CHAPTER 10 – CHANGE OF OCCUPANCY [SUPPLEMENT].**

Use IEBC Chapter 10 except as modified by UFC 3-600-01.

**3-11 CHAPTER 11 – ADDITIONS [SUPPLEMENT].**

Use IEBC Chapter 11 except as modified by UFC 3-600-01.

**3-12 CHAPTER 12 – HISTORIC BUILDINGS [SUPPLEMENT].**

Use IEBC Chapter 12 except as modified below and by UFC 3-600-01.

**3-12.1 Section 1201 – GENERAL.**

**1201.4 Flood hazard areas [Supplement]**

For rehabilitation work costing more than \$7.5 million to facilities already located within the 100-year flood plain, assess the vulnerability of mechanical and electrical subsystems to flood hazards and take necessary measures within the project to mitigate those vulnerabilities. Comply with OUSD Memorandum, Floodplain Management on Department of Defense Installations. This policy applies only to facilities on permanent installations and does not apply to leased space.

**3-13 CHAPTER 13 – PERFORMANCE COMPLIANCE METHODS [SUPPLEMENT].**

Use IEBC Chapter 13 except as modified below and by UFC 3-600-01.

**3-13.1 Section 1301 – GENERAL.**

**1301.2 Applicability [Replacement]**

Structures existing prior to 16 September 2019, in which there is work involving additions, alterations or changes of occupancy must be made to conform to the requirements of this chapter or the provisions of Chapter 3. The provisions of Sections 1301.2.1 through 1301.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-2, M, R, and S. These provisions shall not apply to buildings with occupancies in Groups H, I-1, I-3, or I-4.

**3-13.2 Section 1301 – GENERAL.**

**3-13.2.1 Section 1301.3 Acceptance.**

**1301.3.3 Compliance with flood hazard provisions [Supplement]**

For rehabilitation work costing more than \$7.5 million to facilities already located within the 100-year flood plain, assess the vulnerability of mechanical and electrical

subsystems to flood hazards and take necessary measures within the project to mitigate those vulnerabilities. Comply with OUSD Memorandum, Floodplain Management on Department of Defense Installations. This policy applies only to facilities on permanent installations and does not apply to leased space.

**3-14            CHAPTER 14 – RELOCATED OR MOVED BUILDINGS  
[SUPPLEMENT].**

Use IEBC Chapter 14 except as modified by UFC 3-600-01.

**3-15            CHAPTER 15 – CONSTRUCTION SAFEGUARDS [SUPPLEMENT].**

Use IEBC Chapter 15 except as modified by UFC 3-600-01.

**3-16            CHAPTER 16 – REFERENCED STANDARDS [SUPPLEMENT].**

Use IEBC Chapter 16 except as modified by Paragraph 1-6.2.

**3-17            APPENDICES [DELETION].**

**3-18            RESOURCES [DELETION].**

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## CHAPTER 4 CORROSION PREVENTION AND CONTROL

### 4-1 GENERAL.

Provide design detailing, and use materials, systems, components, and coatings that are durable and minimize the need for preventative and corrective maintenance over the life-cycle of a facility. Refer to Paragraph 1-6.3.4.5.

Many UFGS specifications include materials, coatings, or protective measures that are more durable for use in corrosive environments. However, even in benign environments, where options are stated in UFC and UFGS, use the more corrosion-resistant option whenever possible. Considerations include life-cycle maintenance costs and potential for corrosive microenvironments (for example, deicing salt effect on steel doors). General guidance and training on corrosion prevention and control issues is available at the Corrosion Prevention & Control (CPC) Source webpage at <https://www.wbdg.org/ffc/dod/cpc-source>.

#### 4-1.1 Definition of Corrosion.

Corrosion is defined in 10 USC §2228(f) (1) as, “The deterioration of a material or its properties due to a reaction of that material with its chemical environment.” While traditionally thought of only as deterioration of metal (for example, rusting of steel), some nontraditional examples include rotting of wood, degradation of concrete (for example, carbonation and alkali-silica reaction phenomena), and degradation of composite materials due to reaction with the environment.

#### 4-1.2 Identification of Project Environmental Severity Classification.

Identify and use the Environmental Severity Classification (ESC) in APPENDIX A, Table A-1 or Table A-2, as the basis for project design requirements. The ESC for each military location is based on ISO 9223. Also, use the ESC factor and descriptions provided in ISO 9223 to classify and design for interior, environmentally severe conditions.

Categories C1 and C2 are mildly corrosive while categories C3, C4, and C5 require added corrosion protection. Note that a project site may have a different ESC than the installation (especially in locations near the coast). Any project site within 1 mile (1.61 km) of seawater is ESC C5. Any project site within 1 to 6 miles (1.61 to 9.66 km) of seawater is ESC C4, unless the installation ESC as stated in APPENDIX A is higher. If the calculated ESC of the project site is different from the ESC of the installation, use and design to the higher of the two ESC values. A resource to determine the ESC on a site-specific basis is the ISO Corrosivity Category Estimation Tool (ICCET); it can be found at the following location: <https://www.wbdg.org/additional-resources/tools/corrosion-toolbox>.

#### 4-1.3 Corrosion Prone Locations.

Corrosion prone locations are locations with one or more of the following characteristics:

- Exterior exposed metallic elements at a location with an ESC of C3, C4, or C5. Includes areas open to the exterior (for example, mechanical rooms and hangars), and spaces that are not conditioned by design or may not be conditioned during prolonged periods due to deployment or occupancy.
- Exterior exposed nonmetallic elements at a location with an ESC of C4 or C5.
- Locations where microenvironmental factors (for example, prevailing winds, ventilation, waterfront environments, industrial emissions, deicing salt application, possible chemical splash/spillage, adverse weather events such as flooding or wind-driven rain, and penetrations of the building envelope) may create a locally corrosive environment regardless of ESC.
- Humid locations identified in ANSI/ASHRAE/IES 90.1 as climate zones 0A, 1A, 2A, 3A, 3C, 4C, and 5C.
- High humidity interior areas (for example, bathrooms, locker rooms, laundry rooms, pools, and trainers).

#### **4-1.4 Requirements for Corrosion Prone Locations.**

For corrosion prone locations defined in Paragraph 4-1.3, provide added corrosion protection to the design such as, but not limited to, the following:

- Where material options are provided in a UFGS, use the most durable options.
- Provide higher level of corrosion protection as defined in the appropriate corresponding UFGS.
- Do not use unprotected ferrous metal unless there are no alternatives.
- Coat galvanized steel with an industrial coating.
- Use Type 316L, 304L, 304, or 316 /1/ stainless steel or duplex stainless steels where stainless steels are used.
- Coat aluminum with an industrial protective coating or a heavy-duty anodized coating.
- Isolate dissimilar metals (for example, aluminum and steel, stainless steel and carbon steel, and zinc-coated steel and uncoated steel) by appropriate means to avoid the creation of galvanic cells which occur when dissimilar metals come in contact.

#### **4-1.5 Design Geometries.**

Detail designs to prevent accelerated deterioration of facility components. Design geometries that prevent collection of debris, allow water to readily drain in all situations, incorporate sealed joints between components, are protected from mechanical coating damage, and avoid dissimilar materials in direct contact with each other. Follow best

engineering and design practices to prevent galvanic corrosion. Slope surfaces such as windows and pavements to drain away from the structure.

Avoid designs that tend to direct corrosive elements to any specific area of a structure. Minimize the flow of water, airborne contaminants (for example, salts and pollutants), and humid air over susceptible materials when designing facility components, systems, and assemblies.

#### **4-1.6 Environmental Severity Factors.**

Design based on the Environmental Severity Factors present in the project location and application, including the following.

##### **4-1.6.1 Elevated Temperatures.**

Design projects to prevent corrosion in applications where elevated temperatures are present. Elevated temperatures have adverse effects on building materials such as paints, woods, and many asphalt-based products. High temperatures combined with high humidity cause severe deterioration.

##### **4-1.6.2 Ultraviolet Radiation.**

Use materials that are resistant to, or protected from, ultraviolet radiation. High ultraviolet exposure results in rapid deterioration of most nonmetallic roofing materials, paints, sealants, elastomeric coatings, and wood.

##### **4-1.6.3 Humidity Resistance.**

Use materials that can withstand high humidity or incorporate efforts to eliminate humidity in humid locations.

Ensure vapor barrier locations prevent moisture buildup. Do not use building materials that exhibit hygroscopic properties and may lose their structural and functional properties when exposed to sustained humidity.

##### **4-1.6.4 Biological Corrosivity.**

When selecting materials (for example, wood), design for the presence of insects, fungi, and marine borers as applicable to the location.

#### **4-1.7 System, Component, and Material Design Requirements.**

##### **4-1.7.1 Piping and System Corrosion.**

Protect water and wastewater systems, fire water systems, and other piping from internal and external corrosion. Design factors include water quality and composition (for example, pH, alkalinity, and dissolved oxygen), ferric scale, flow conditions, biological activity, and the presence of disinfectants and corrosion inhibitors. Provide

corrosion control treatment in accordance with UFC 3-230-01, UFC 3-230-03, UFC 3-240-01, and UFC 3-240-02.

#### **4-1.7.2 Structural Members.**

Use galvanized steel or stainless steel for structural members embedded in concrete, exterior railings, handrails, fences, guardrails, and anchor bolts.

Design systems that can be maintained over the life of the facility. Avoid concealed and inaccessible members.

#### **4-1.7.3 Hardware and Fasteners.**

Specify galvanized ferrous metals, stainless steel, brass, bronze, copper, aluminum, or other corrosion resistant metals for hardware and fasteners. Do not use ferrous metal as finishing strips or as components of other securement systems, even if a protective coating is provided.

#### **4-1.7.4 Dissimilar Metals in Close Contact.**

Protect against galvanic corrosion when dissimilar metals are in close contact. Metals such as magnesium, steel, zinc, and aluminum (anodes) tend to corrode when in contact with copper, stainless steel, and nickel (cathodes). When relatively incompatible metals must be assembled in the design, apply the following methods to minimize or prevent galvanic corrosion.

- Design metal couples where the surface area of the cathode is smaller than the surface area of the anode metal and only when the anode metal can afford loss due to local corrosion. For example, only use stainless steel bolts to fasten carbon steel parts when bolt removal is frequent and necessary, and when the loss of carbon steel at the bolt hole is acceptable. Interpose a non-absorbing, inert gasket or washer between the dissimilar materials prior to connecting them. This is applicable to couples that are not to serve as electrical conductors.
- Seal faying edges to preclude the entrance of liquids.
- Apply corrosion-inhibiting pastes or compounds under the heads of screws or bolts inserted into dissimilar metal surfaces, whether or not the fasteners had been previously plated or otherwise treated, in addition to applying an organic coating to the faying surfaces prior to assembly. In situations where large faying surfaces are involved it may be feasible to insert a thicker barrier such as dried adhesive or sealant material. This applies to joints that are not required to be electrically conductive.
- Where practicable or where it will not interfere with the proposed use of the assembly, coat the joint externally with an effective paint system or sealant.

- Coat welded or brazed dissimilar metal assemblies with a paint system or other suitable protective coatings to at least 0.4 inch (1 cm) beyond the heat-affected zone.

#### **4-1.7.5 Protective Coatings.**

Use UFC 3-190-06 for protective coatings and paints requirements. Factory applied coatings are more life-cycle cost effective than field painting procedures most of the time. The cost to maintain protective coating systems often includes significant fixed costs (for example, scaffolding and rigging, environmental protection, and disposal of debris). This usually means that the system with the highest attainable life is the best choice. Avoid concealed and inaccessible members.

Provide coating systems durable enough to withstand mechanical damage in service. This may include gouging or chipping during normal activities in a facility. In environments such as desert climates, blowing sand can accelerate deterioration of surface coatings and lead to corrosion of materials earlier in the life cycle process.

#### **4-1.7.6 Buried or Submerged Structures and Systems.**

Include a combination of cathodic protection (CP) systems, protective coatings, proper material selection, encasement, or other methods for overall corrosion protection of buried or submerged structures or systems. For buried structures or systems, design for the corrosivity of the soil, including soil pH, resistivity, moisture content, and presence of chlorides, sulfides, and bacteria. Design for differences in soil composition, stray electrical currents, and effects of connections of new to existing structures. Use UFC 3-570-01 to determine where CP is required.

For immersed structures, consider the corrosivity of the water (primarily influenced by salinity, but also affected by pH, dissolved oxygen, temperature, current, and microbiological activity). Tidal and splash zones will experience higher corrosion than continuously immersed or atmospherically exposed zones. For submerged or partially submerged structures, account for differences in corrosion potential associated with each zone (for example, atmospheric, splash, tidal, submerged, and subsoil).

#### **4-1.7.7 Waterfront and Coastal Structures and Systems.**

For structures proximate or at the waterfront, in addition to atmospheric corrosion, design for the presence of hydrostatic forces, wind, salt spray, currents, tides, waves, ice, marine borers, insects, and pollution from waterfront operations. Some common grades of stainless alloy such as Type 304 or 316 are susceptible to corrosion when immersed in salt or brackish water.

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## APPENDIX A ESC FOR DOD LOCATIONS

**Table A-1 ESC for United States, Its Territories and Possessions**

United States, Its Territories and Possessions		
State/Territory/Possession	Installation Master Name	ESC*
Alabama	Alabama National Guard	C3 <sup>1</sup>
	Alabama Reserves	C3 <sup>1</sup>
	Anniston AR Depot	C3 <sup>1</sup>
	Fort McClellan	C3 <sup>1</sup>
	Fort Rucker	C3 <sup>1</sup>
	Maxwell AF Base	C3 <sup>1</sup>
	Redstone Arsenal	C3 <sup>1</sup>
Alaska	Alaska National Guard	C4 <sup>3</sup>
	Alaska Reserves	C4 <sup>3</sup>
	Clear AF Station	C2 <sup>1</sup>
	Eareckson Air Station	C4 <sup>3</sup>
	Eielson AF Base	C2 <sup>1</sup>
	Fort Greely	C2 <sup>1</sup>
	Fort Wainwright	C2 <sup>1</sup>
	Joint Base Elmendorf-Richardson	C3 <sup>3</sup>
	NAF Adak AK	C5 <sup>3</sup>
Arizona	AF PLANT 44 ARMED FORCES PLANT	C2 <sup>1</sup>
	Arizona National Guard	C2 <sup>1</sup>
	Arizona Reserves	C2 <sup>1</sup>
	Davis-Monthan AF Base	C2 <sup>1</sup>
	Fort Huachuca	C2 <sup>1</sup>
	Luke AF Base	C2 <sup>1</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Arizona (continued)	MCAS Yuma AZ	C2 <sup>1</sup>
	Yuma Proving Ground	C2 <sup>1</sup>
Arkansas	Arkansas National Guard	C3 <sup>1</sup>
	Arkansas Reserves	C3 <sup>1</sup>
	Little Rock AF Base	C3 <sup>1</sup>
	Pine Bluff Arsenal	C3 <sup>1</sup>
California	AF Plant 42 Armed Forces Plant	C2 <sup>1</sup>
	Beale AF Base	C2 <sup>1</sup>
	California National Guard	C3 <sup>2</sup>
	California Reserves	C3 <sup>2</sup>
	Defense Distribution Depot San Joaquin	C2 <sup>1</sup>
	Edwards AF Base	C2 <sup>1</sup>
	Fort Hunter Liggett	C2 <sup>1</sup>
	Fort Ord	C5 <sup>3</sup>
	FRC North Island	C4 <sup>3</sup>
	Hunters Point Annex	C5 <sup>3</sup>
	Los Angeles AF Base	C4 <sup>2</sup>
	MCAGCC Twenty-nine Palms CA	C2 <sup>1</sup>
	MCAS El Toro Santa Ana CA	C3 <sup>1</sup>
	MCAS Miramar	C4 <sup>3</sup>
	MCAS Tustin CA	C3 <sup>1</sup>
	MCB Camp Pendleton CA	C4 <sup>3</sup>
MCLB Barstow CA	C2 <sup>1</sup>	
MCRD San Diego CA	C4 <sup>3</sup>	



<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
California (continued)	Military Ocean Terminal Concord	C3 <sup>2</sup>
	NAF El Centro CA	C2 <sup>1</sup>
	NAS Alameda CA	C5 <sup>3</sup>
	NAS Lemoore CA	C2 <sup>1</sup>
	National Training Center And Fort Irwin	C2 <sup>1</sup>
	Naval Base Point Loma	C4 <sup>3</sup>
	Naval Base Ventura City Pt Mugu CA	C5 <sup>3</sup>
	Naval Weapons Station Seal Beach	C4 <sup>3</sup>
	NAVSTA San Diego CA	C4 <sup>3</sup>
	NAWS China Lake	C2 <sup>1</sup>
	NRC Stockton CA	C2 <sup>1</sup>
	NS Treasure Island CA	C5 <sup>3</sup>
	NSA Monterey	C5 <sup>3</sup>
	NSY Mare Island CA	C4 <sup>3</sup>
	Presidio Of Monterey	C5 <sup>3</sup>
	PWC San Francisco CA	C5 <sup>3</sup>
	Sacramento AR Depot	C3 <sup>1</sup>
	Sierra AR Depot	C2 <sup>1</sup>
Travis AF Base	C3 <sup>1</sup>	
Vandenberg AF Base	C4 <sup>2</sup>	
Colorado	Buckley AF Base	C2 <sup>1</sup>
	Cheyenne Mountain AF Station	C2 <sup>1</sup>
	Colorado National Guard	C2 <sup>1</sup>
	Colorado Reserves	C2 <sup>1</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Colorado (continued)	Fort Carson	C2 <sup>1</sup>
	Peterson AF Base	C2 <sup>1</sup>
	Pueblo Chemical Depot	C2 <sup>1</sup>
	Rocky Mountain Arsenal	C2 <sup>1</sup>
	Schriever AF Base	C2 <sup>1</sup>
	USAF Academy	C2 <sup>1</sup>
Connecticut	Connecticut National Guard	C3 <sup>1</sup>
	Connecticut Reserves	C3 <sup>1</sup>
	NWIRP Bloomfield CT	C3 <sup>1</sup>
	Stratford AR Engine Plant	C3 <sup>2</sup>
	Subbase New London CT	C4 <sup>3</sup>
Cuba	NAVSTA Guantanamo Bay	C5 <sup>3</sup>
Delaware	Delaware National Guard	C3 <sup>1</sup>
	Delaware Reserves	C3 <sup>2</sup>
	Dover AF Base	C3 <sup>2</sup>
District of Columbia	District Of Columbia National Guard	C3 <sup>1</sup>
	Joint Base Anacostia-Bolling	C3 <sup>1</sup>
	MARBKS Washington DC	C3 <sup>1</sup>
	Naval Station Washington Navy Yard	C3 <sup>3</sup>
	Washington DC Reserves	C3 <sup>1</sup>
Florida	Blount Island Command	C4 <sup>3</sup>
	Cecil Field FL NAS	C3 <sup>1</sup>
	Eglin AF Base	C5 <sup>3</sup>
	Florida National Guard	C5 <sup>3</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Florida (continued)	Florida Reserves	C5 <sup>3</sup>
	FRC Jacksonville	C4 <sup>2</sup>
	Hurlburt Field	C5 <sup>3</sup>
	Macdill AF Base	C5 <sup>3</sup>
	NAS Key West FL	C5 <sup>3</sup>
	NAS Pensacola FL	C5 <sup>3</sup>
	NAS Whiting Fld Milton FL	C3 <sup>1</sup>
	NAVSTA Mayport FL	C4 <sup>3</sup>
	NOMI Pensacola	C5 <sup>3</sup>
	NSA Orlando	C3 <sup>1</sup>
	NSA Panama City	C5 <sup>3</sup>
	Orlando FI Ntc	C3 <sup>1</sup>
	Patrick AF Base	C5 <sup>3</sup>
	Tyndall AF Base	C5 <sup>3</sup>
USAG Miami	C4 <sup>2</sup>	
Georgia	Fort Benning	C3 <sup>1</sup>
	Fort Gordon	C3 <sup>1</sup>
	Fort Mcpherson	C3 <sup>1</sup>
	Fort Stewart	C3 <sup>1</sup>
	Ft Mcpherson Brac/Excess Sites	C3 <sup>1</sup>
	Georgia National Guard	C3 <sup>1</sup>
	Georgia Reserves	C3 <sup>1</sup>
	MCLB Albany GA	C3 <sup>1</sup>
	Moody AF Base	C3 <sup>1</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Georgia (continued)	NAS Athens	C3 <sup>1</sup>
	NSA Atlanta Ga	C3 <sup>1</sup>
	Robins AF Base	C3 <sup>1</sup>
	Subbase Kings Bay GA	C4 <sup>3</sup>
Hawaii	Fort Shafter	C4 <sup>3</sup>
	Hawaii National Guard	C4 <sup>3</sup>
	Hawaii Reserves	C4 <sup>2</sup>
	Joint Base Pearl Harbor-Hickam	C4 <sup>3</sup>
	Kaena Point Satellite Tracking Station	C5 <sup>3</sup>
	MCB Hawaii Kaneohe	C5 <sup>3</sup>
	NAS Barbers Pt HI	C4 <sup>3</sup>
	Pacific Missile Range Facility, Hawaii	C4 <sup>3</sup>
	Schofield Barracks	C4 <sup>2</sup>
	Wheeler AR Airfield	C4 <sup>2</sup>
Idaho	Idaho National Guard	C2 <sup>1</sup>
	Idaho Reserves	C2 <sup>1</sup>
	Mountain Home AF Base	C2 <sup>1</sup>
Illinois	Illinois National Guard	C3 <sup>1</sup>
	Illinois Reserves	C3 <sup>1</sup>
	NAVSTA Great Lakes II	C3 <sup>1</sup>
	Rock Island Arsenal	C3 <sup>1</sup>
	Scott AF Base	C3 <sup>1</sup>
Indiana	Crane AR Ammunition Activity	C3 <sup>1</sup>
	Fort Benjamin Harrison	C3 <sup>1</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Indiana (continued)	Indiana National Guard	C3 <sup>1</sup>
	Indiana Reserves	C3 <sup>1</sup>
	Newport Chemical Depot	C3 <sup>1</sup>
	NSA Crane	C3 <sup>1</sup>
Iowa	Iowa AR Ammunition Plant	C3 <sup>1</sup>
	Iowa National Guard	C3 <sup>1</sup>
	Iowa Reserves	C3 <sup>1</sup>
Kansas	Fort Riley	C2 <sup>1</sup>
	Fort Leavenworth	C3 <sup>1</sup>
	McConnell AF Base	C3 <sup>1</sup>
	Kansas National Guard	C2 <sup>1</sup>
	Kansas Reserves	C3 <sup>1</sup>
Kentucky	Blue Grass AR Depot	C3 <sup>1</sup>
	Fort Campbell	C3 <sup>1</sup>
	Fort Knox	C3 <sup>1</sup>
	Kentucky National Guard	C3 <sup>1</sup>
	Kentucky Reserves	C3 <sup>1</sup>
	Louisville Ky NSWC	C3 <sup>1</sup>
Louisiana	Barksdale AF Base	C3 <sup>1</sup>
	Fort Polk	C3 <sup>1</sup>
	HQ 4Th MAW New Orleans LA	C4 <sup>2</sup>
	Louisiana AR Ammunition Plant	C3 <sup>1</sup>
	Louisiana National Guard	C4 <sup>3</sup>
	Louisiana Reserves	C4 <sup>3</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Louisiana (continued)	New Orleans NAS Annex	C3 <sup>1</sup>
	NSA New Orleans LA	C4 <sup>2</sup>
Maine	Maine National Guard	C3 <sup>3</sup>
	Maine Reserves	C3 <sup>3</sup>
	NAS Brunswick ME	C3 <sup>2</sup>
Mariana Islands	Agana Guam NAS	C5 <sup>3</sup>
	Guam National Guard	C4 <sup>2</sup>
	Guam Reserves	C4 <sup>2</sup>
	Joint Region Marianas	C5 <sup>3</sup>
Maryland	Aberdeen Proving Ground	C2 <sup>1</sup>
	Fort Detrick	C3 <sup>1</sup>
	Fort George G Meade	C3 <sup>1</sup>
	Joint Base Andrews	C3 <sup>1</sup>
	Maryland National Guard	C3 <sup>1</sup>
	Maryland Reserves	C3 <sup>1</sup>
	NAS Patuxent River MD	C3 <sup>1</sup>
	NSA Annapolis	C3 <sup>1</sup>
	NSA South Potomac	C3 <sup>1</sup>
	NSA Thurmont	C3 <sup>1</sup>
	NSWC Carderock MD	C3 <sup>1</sup>
	US AR Research Laboratory Adelphi	C3 <sup>1</sup>
	Walter Reed National Military Medical Center	C3 <sup>1</sup>
	Washington DC National Guard	C3 <sup>1</sup>
Washington Headquarters	C3 <sup>1</sup>	

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Massachusetts	Cape Cod AF Station	C3 <sup>3</sup>
	Fort Devens	C2 <sup>1</sup>
	Hanscom AF Base	C3 <sup>1</sup>
	Massachusetts National Guard	C3 <sup>1</sup>
	Massachusetts Reserves	C3 <sup>1</sup>
	NWIRP Bedford MA	C3 <sup>1</sup>
	Soldier Systems Center	C3 <sup>1</sup>
	South Weymouth MA NAS	C3 <sup>1</sup>
Michigan	Detroit Arsenal	C2 <sup>1</sup>
	Michigan National Guard	C2 <sup>1</sup>
	Michigan Reserves	C2 <sup>1</sup>
	USAG Selfridge	C2 <sup>1</sup>
Minnesota	Minnesota National Guard	C2 <sup>1</sup>
	Minnesota Reserves	C2 <sup>1</sup>
Mississippi	CBC Gulfport MS	C5 <sup>3</sup>
	Columbus AF Base	C3 <sup>1</sup>
	Keesler AF Base	C5 <sup>3</sup>
	Mississippi National Guard	C3 <sup>1</sup>
	Mississippi Reserves	C3 <sup>1</sup>
	NS Pascagoula MS	C4 <sup>3</sup>
Missouri	Fort Leonard Wood	C3 <sup>1</sup>
	Lake City AR Ammunition Plant	C3 <sup>1</sup>
	MCSPTACT Kansas City MO	C2 <sup>1</sup>
	Missouri National Guard	C3 <sup>1</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Missouri (continued)	Missouri Reserves	C3 <sup>1</sup>
	NAS Meridian MS	C3 <sup>1</sup>
	Whiteman AF Base	C3 <sup>1</sup>
Montana	Ellsworth AF Base	C2 <sup>1</sup>
	Malmstrom AF Base	C2 <sup>1</sup>
	Montana National Guard	C2 <sup>1</sup>
	Montana Reserves	C2 <sup>1</sup>
Nebraska	Cornhusker AR Ammunition Plant	C2 <sup>1</sup>
	Nebraska National Guard	C2 <sup>1</sup>
	Nebraska Reserves	C2 <sup>1</sup>
	Offutt AF Base	C3 <sup>1</sup>
Nevada	Hawthorne AR Depot	C4 <sup>2</sup>
	NAS Fallon NV	C2 <sup>1</sup>
	Nellis AF Base	C2 <sup>1</sup>
	Nevada National Guard	C2 <sup>1</sup>
	Nevada Reserves	C2 <sup>1</sup>
New Hampshire	New Boston AF Station	C2 <sup>1</sup>
	New Hampshire National Guard	C2 <sup>1</sup>
	New Hampshire Reserves	C2 <sup>1</sup>
	NSY Portsmouth NH	C3 <sup>3</sup>
New Jersey	Fort Monmouth	C3 <sup>2</sup>
	Joint Base Mcguire-Dix-Lakehurst	C3 <sup>1</sup>
	Naval Weapons Station Earle NJ	C3 <sup>2</sup>
	New Jersey National Guard	C3 <sup>1</sup>



<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
New Jersey (continued)	New Jersey Reserves	C3 <sup>1</sup>
	Picatinny Arsenal	C3 <sup>1</sup>
New Mexico	Cannon AF Base	C2 <sup>1</sup>
	Holloman AF Base	C2 <sup>1</sup>
	Kirtland AF Base	C2 <sup>1</sup>
	New Mexico National Guard	C2 <sup>1</sup>
	New Mexico Reserves	C2 <sup>1</sup>
	White Sands Missile Range	C2 <sup>1</sup>
New York	Fort Drum	C3 <sup>1</sup>
	Fort Hamilton	C3 <sup>3</sup>
	MARCORPS Dist 1 Garden City NY	C3 <sup>2</sup>
	NAVSUPPU Saratoga Springs NY	C2 <sup>1</sup>
	New York National Guard	C2 <sup>1</sup>
	New York Reserves	C2 <sup>1</sup>
	NWIRP Bethpage NY	C3 <sup>2</sup>
	NWIRP Calverton NY	C3 <sup>2</sup>
	Rome Laboratory	C3 <sup>1</sup>
	Seneca AR Depot Activity	C3 <sup>1</sup>
	USMA	C3 <sup>1</sup>
	Watervliet Arsenal	C2 <sup>1</sup>
North Carolina	Fort Bragg	C3 <sup>1</sup>
	FRC/MCAS Cherry Point	C4 <sup>3</sup>
	MCB Camp Lejeune NC	C4 <sup>3</sup>
	Military Ocean Terminal Sunny Point	C5 <sup>3</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
North Carolina (continued)	North Carolina National Guard	C3 <sup>1</sup>
	North Carolina Reserves	C3 <sup>1</sup>
	Pope AF Base	C3 <sup>1</sup>
	Seymour Johnson AF Base	C3 <sup>1</sup>
North Dakota	Cavalier AF Station	C2 <sup>1</sup>
	Grand Forks AF Base	C2 <sup>1</sup>
	Minot AF Base	C2 <sup>1</sup>
	North Dakota National Guard	C2 <sup>1</sup>
	North Dakota Reserves	C2 <sup>1</sup>
Ohio	Defense Supply Center Columbus	C3 <sup>1</sup>
	Joint System Manufacturing Center Lima	C3 <sup>1</sup>
	Ohio National Guard	C3 <sup>1</sup>
	Ohio Reserves	C3 <sup>1</sup>
	Wright-Patterson AF Base	C3 <sup>1</sup>
Oklahoma	Altus AF Base	C2 <sup>1</sup>
	Fort Sill	C2 <sup>1</sup>
	Oklahoma National Guard	C3 <sup>1</sup>
	Oklahoma Reserves	C3 <sup>1</sup>
	Tinker AF Base	C3 <sup>1</sup>
	Vance AF Base	C3 <sup>1</sup>
Oregon	Oregon National Guard	C3 <sup>1</sup>
	Oregon Reserves	C3 <sup>2</sup>
	Umatilla Chemical Depot	C2 <sup>1</sup>
Pennsylvania	Carlisle Barracks	C3 <sup>1</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Pennsylvania (continued)	Defense Distribution Depot Susquehanna	C2 <sup>1</sup>
	Defense Supply Center Philadelphia	C3 <sup>1</sup>
	Fort Indiantown Gap	C3 <sup>1</sup>
	Letterkenny AR Depot	C3 <sup>1</sup>
	NSA Mechanicsburg PA	C3 <sup>1</sup>
	Ord Research Lab Univ Park PA	C3 <sup>1</sup>
	Pennsylvania National Guard	C3 <sup>1</sup>
	Pennsylvania Reserves	C3 <sup>1</sup>
	Philadelphia PA NS	C3 <sup>1</sup>
	Scranton AR Ammunition Plant	C2 <sup>1</sup>
	Tobyhanna AR Depot	C2 <sup>1</sup>
Warminster PA NAWC-AD	C3 <sup>1</sup>	
Puerto Rico	Fort Buchanan	C5 <sup>2</sup>
	Naval Activity Puerto Rico	C5 <sup>3</sup>
	Puerto Rico National Guard	C5 <sup>2</sup>
	Puerto Rico Reserves	C5 <sup>3</sup>
	Roosevelt Roads NS	C5 <sup>3</sup>
Rhode Island	Davisville RI CBC	C3 <sup>2</sup>
	NAVSTA Newport RI	C3 <sup>3</sup>
	Rhode Island National Guard	C3 <sup>2</sup>
	Rhode Island Reserves	C3 <sup>2</sup>
South Carolina	Fort Jackson	C2 <sup>1</sup>
	Joint Base Charleston	C4 <sup>3</sup>
	MCAS Beaufort SC	C4 <sup>3</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
South Carolina (continued)	MCRD Beaufort Pi SC	C4 <sup>3</sup>
	Shaw AF Base	C3 <sup>1</sup>
	South Carolina National Guard	C3 <sup>1</sup>
	South Carolina Reserves	C3 <sup>1</sup>
South Dakota	South Dakota National Guard	C2 <sup>1</sup>
	South Dakota Reserves	C2 <sup>1</sup>
Tennessee	Arnold AF Base	C3 <sup>1</sup>
	Defense Depot Memphis	C3 <sup>1</sup>
	Holston AR Ammunition Plant	C3 <sup>1</sup>
	Milan AR Ammunition Plant	C3 <sup>1</sup>
	NSA Midsouth Memphis TN	C3 <sup>1</sup>
	Tennessee National Guard	C3 <sup>1</sup>
	Tennessee Reserves	C3 <sup>1</sup>
Texas	Applied Research Lab Austin TX	C3 <sup>1</sup>
	Brooks City Base	C3 <sup>1</sup>
	Corpus Christi AR Depot	C5 <sup>3</sup>
	Dyess AF Base	C2 <sup>1</sup>
	Fort Bliss	C2 <sup>1</sup>
	Fort Hood	C3 <sup>1</sup>
	Goodfellow AF Base	C2 <sup>1</sup>
	Joint Base San Antonio	C3 <sup>1</sup>
	Laughlin AF Base	C3 <sup>1</sup>
	Longhorn AR Ammunition Plant	C3 <sup>2</sup>
	McAlester AR Ammunition Plant	C3 <sup>1</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Texas (continued)	NAS Corpus Christi TX	C5 <sup>3</sup>
	NAS Kingsville TX	C3 <sup>1</sup>
	NAVSTA Ingleside TX	C5 <sup>3</sup>
	NWIRP Dallas TX	C3 <sup>1</sup>
	NWIRP Mcgregor TX	C3 <sup>1</sup>
	Red River AR Depot	C3 <sup>1</sup>
	Sheppard AF Base	C2 <sup>1</sup>
	Texas National Guard	C3 <sup>1</sup>
	Texas Reserves	C3 <sup>1</sup>
United States Virgin Islands	Virgin Islands National Guard	C5 <sup>3</sup>
	Virgin Islands Reserves	C5 <sup>2</sup>
Utah	Deseret Chemical Depot	C2 <sup>1</sup>
	Dugway Proving Ground	C2 <sup>1</sup>
	Hill AF Base	C2 <sup>2</sup>
	Tooele AR Depot	C2 <sup>1</sup>
	Utah National Guard	C2 <sup>2</sup>
	Utah Reserves	C2 <sup>2</sup>
Vermont	Vermont National Guard	C2 <sup>1</sup>
	Vermont Reserves	C2 <sup>1</sup>
Virginia	Arlington National Cemetery	C3 <sup>1</sup>
	Dam Neck Naval Station	C4 <sup>3</sup>
	Defense Supply Center Richmond	C3 <sup>1</sup>
	Fort Ap Hill	C3 <sup>1</sup>
	Fort Belvoir	C3 <sup>1</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Virginia (continued)	Fort Lee	C3 <sup>1</sup>
	Fort Myer	C3 <sup>1</sup>
	HQBN HQMC Arlington VA	C3 <sup>1</sup>
	Joint Base Langley–Eustis	C3 <sup>3</sup>
	Joint Base Myer-Henderson Hall	C3 <sup>1</sup>
	Joint Expeditionary Base Little Creek-Fort Story	C4 <sup>3</sup>
	MCB Quantico VA	C3 <sup>1</sup>
	NAS Oceana VA	C3 <sup>2</sup>
	Naval Weapons Station Yorktown	C3 <sup>3</sup>
	NAVMEDCEN Portsmouth VA	C4 <sup>3</sup>
	NAVSTA Norfolk VA	C4 <sup>3</sup>
	Norfolk NSY Portsmouth VA	C4 <sup>3</sup>
	NOSTRA Yorktown	C3 <sup>3</sup>
	NSA Northwest	C3 <sup>1</sup>
	Radford AR Ammunition Plant	C3 <sup>1</sup>
Virginia National Guard	C3 <sup>1</sup>	
Virginia Reserves	C3 <sup>1</sup>	
Washington	Applied Physics Lab Seattle WA	C4 <sup>3</sup>
	Fairchild AF Base	C2 <sup>1</sup>
	Joint Base Lewis-McChord	C3 <sup>2</sup>
	MCRC Yakima	C2
	NAS Whidbey Island WA	C5 <sup>3</sup>
	Naval Base Kitsap	C4 <sup>3</sup>
	NAVMAG Indian Island WA	C5 <sup>3</sup>

<b>United States, Its Territories and Possessions</b>		
<b>State/Territory/Possession</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Washington (continued)	NAVSTA Everett WA	C5 <sup>3</sup>
	NS Puget Sound WA	C4 <sup>3</sup>
	Washington National Guard	C3 <sup>2</sup>
	Washington Reserves	C3 <sup>2</sup>
West Virginia	Allegany Ballistics Lab	C3 <sup>1</sup>
	NSA Sugar Grove	C3 <sup>1</sup>
	West Virginia National Guard	C3 <sup>1</sup>
	West Virginia Reserves	C3 <sup>1</sup>
Wisconsin	Badger AR Ammunition Plant	C2 <sup>1</sup>
	Fort McCoy	C2 <sup>1</sup>
	Wisconsin National Guard	C2 <sup>1</sup>
	Wisconsin Reserves	C2 <sup>1</sup>
Wyoming	Wyoming National Guard	C2 <sup>1</sup>
	Wyoming Reserves	C2 <sup>1</sup>
<p>*ESC Value Notes:</p> <p>1. ESC value is based on installation location greater than 6 miles (9.66 km) from a saltwater source. If the project site is less than 6 miles (9.66 km) from a saltwater source, use next highest ESC or verify category with ICCET. If the project site is proximate to a pollution source, use the next highest ESC.</p> <p>2. ESC value is based on installation location greater than 1 mile (1.61 km) from a saltwater source and less than 6 miles (9.66 km). If the project site is less than 1 mile (1.61 km) from a saltwater source, use the next highest ESC. If the project site is proximate to a pollution source, use the next highest ESC.</p> <p>3. ESC value is based on installation location less than 1 mile (1.61 km) from a salt water source. If the project site is proximate to a pollution source, use the next highest ESC if available.</p>		

**Table A-2 ESC for Outside United States, Its Territories and Possessions**

Outside United States, Its Territories and Possessions			
Continent/Region	Country/Territory	Installation Master Name	ESC*
Africa	Djibouti	Camp Lemonnier	C4 <sup>2</sup>
	Egypt	NAMRU Three Cairo Egypt	C3 <sup>2</sup>
Asia	Afghanistan	Bagram AF Base	C3 <sup>1</sup>
		Camp Eggers	C2 <sup>1</sup>
		Camp Marmal	C2 <sup>1</sup>
	Bahrain	NSA Bahrain	C3 <sup>1</sup>
	Iraq	Al Taqaddum Army Base	C2 <sup>1</sup>
		Camp Fallujah	C2 <sup>1</sup>
		Camp Taji	C2 <sup>1</sup>
	Israel	Attache Israel	C3 <sup>2</sup>
	Japan	Camp Zama	C3 <sup>2</sup>
		COMFLEACT Kadena Okinawa Ja	C5 <sup>1</sup>
		COMFLEACT Sasebo Ja	C3 <sup>1</sup>
		COMFLEACT Yokosuka Ja	C3 <sup>1</sup>
		Fort Buckner	C5 <sup>1</sup>
		Kadena Air Base	C5 <sup>1</sup>
		MCAS Iwakuni Ja	C4 <sup>3</sup>
		MCB Camp S D Butler Okinawa Ja	C5 <sup>3</sup>
Misawa Air Base		C3 <sup>1</sup>	
NAF Atsugi Ja		C3 <sup>1</sup>	
NAF Misawa Ja		C3 <sup>1</sup>	
Sagami Depot		C3 <sup>1</sup>	
Shariki Communication Site		C3 <sup>1</sup>	



<b>Outside United States, Its Territories and Possessions</b>				
<b>Continent/Region</b>	<b>Country/Territory</b>	<b>Installation Master Name</b>	<b>ESC*</b>	
Asia (continued)	Japan (continued)	Yokota Air Base	C3 <sup>1</sup>	
	Kuwait	Ahmed Al Jaber Air Base	C2 <sup>1</sup>	
	Kyrgyzstan	Manas International Airport	C2	
	Qatar	Al Udeid Air Base	C3 <sup>1</sup>	
		As Sayliyah Army Base	C2 <sup>1</sup>	
	Singapore	NAVREGCONTRCTR Singapore	C5 <sup>3</sup>	
	South Korea	Area 1, Korea	C3 <sup>1</sup>	
		Area 2, Korea	C3 <sup>1</sup>	
		Area 3, Korea	C5 <sup>1</sup>	
		Area 4, Korea	C3 <sup>1</sup>	
		Taegu Air Base	C3 <sup>1</sup>	
	Turkey	Incirlik Air Base	C3 <sup>2</sup>	
		Izmir Air Station	C3 <sup>3</sup>	
		Kurecik AF Base	C2 <sup>1</sup>	
	United Arab Emirates	Al Dhafra AF Base	C3 <sup>1</sup>	
	Europe	Belgium	USAG Benelux	C3 <sup>1</sup>
		Bosnia	Camp Bedrock	C2 <sup>1</sup>
Germany		Germersheim AR Depot	C3 <sup>1</sup>	
		Landstuhl	C3 <sup>1</sup>	
		Ramstein Air Base	C3 <sup>1</sup>	
		Spangdahlem Air Base	C3 <sup>1</sup>	
		Taylor Barracks	C3 <sup>1</sup>	
		USAG Ansbach	C2 <sup>1</sup>	
USAG Bamberg	C3 <sup>1</sup>			

<b>Outside United States, Its Territories and Possessions</b>				
<b>Continent/Region</b>	<b>Country/Territory</b>	<b>Installation Master Name</b>	<b>ESC*</b>	
Europe (continued)	Germany (continued)	USAG Baumholder	C3 <sup>1</sup>	
		USAG Darmstadt	C3 <sup>1</sup>	
		USAG Franconia	C2 <sup>1</sup>	
		USAG Giessen	C3 <sup>2</sup>	
		USAG Grafenwoehr	C2 <sup>1</sup>	
		USAG Heidelberg	C3 <sup>1</sup>	
		USAG Hessen	C3 <sup>1</sup>	
		USAG Hohenfels	C2	
		USAG Kaiserslautern	C3 <sup>1</sup>	
		USAG Mannheim	C3 <sup>1</sup>	
		USAG Schinnen	C3 <sup>1</sup>	
		USAG Schweinfurt	C3 <sup>1</sup>	
		USAG Stuttgart	C3 <sup>1</sup>	
		USAG Wiesbaden	C3 <sup>1</sup>	
	Wuerzburg Tng Areas	C3 <sup>1</sup>		
		Greece	NSA Souda Bay Gr	C3 <sup>1</sup>
		Iceland	NAS Keflavik	C4
		Italy	Aviano Air Base	C3 <sup>1</sup>
			NAS Sigonella It	C3 <sup>1</sup>
			NSA Naples It	C3 <sup>1</sup>
	USAG Livorno		C3	
	USAG Vicenza		C3	
	Kosovo	Camp Bondsteel	C2 <sup>1</sup>	
		Camp Monteith	C2 <sup>1</sup>	

<b>Outside United States, Its Territories and Possessions</b>			
<b>Continent/Region</b>	<b>Country/Territory</b>	<b>Installation Master Name</b>	<b>ESC*</b>
Europe (continued)	Netherlands	JFC North	C3 <sup>1</sup>
	Portugal	Lajes Field	C5
	Spain	Moron Air Base	C3 <sup>1</sup>
		NAVSTA Rota Sp	C4 <sup>3</sup>
	United Kingdom	Alconbury Royal AF Station	C3 <sup>1</sup>
		Croughton Royal AF Station	C3 <sup>1</sup>
		Fairford Royal AF Station	C3 <sup>1</sup>
		Lakenheath Royal AF Station	C3 <sup>1</sup>
		Mildenhall Royal AF Station	C3 <sup>1</sup>
Indian Ocean	British Indian Ocean Territory	Navsuppfac Diego Garcia Io	C5
North America	Greenland	Thule Air Base	C2 <sup>1</sup>
	Honduras	Enrique Soto Cano AF Base	C3 <sup>1</sup>
Oceania	Australia	Navcommsta H E Holt Exmouth As	C3 <sup>1</sup>
	Marshall Islands	US AR Kwajalein Atoll	C5 <sup>3</sup>
South America	Peru	Navmedrschcen Det Lima Peru	C5 <sup>3</sup>
<p>*ESC Value Notes:</p> <p>1. ESC value is based on installation location greater than 6 miles (9.66 km) from a saltwater source. If the project site is less than 6 miles (9.66 km) from a saltwater source, use next highest ESC or verify category with ICCET. If the project site is proximate to a pollution source, use the next highest ESC.</p> <p>2. ESC value is based on installation location greater than 1 mile (1.61 km) from a saltwater source and less than 6 miles (9.66 km). If the project site is less than 1 mile (1.61 km) from a saltwater source, use the next highest ESC. If the project site is proximate to a pollution source, use the next highest ESC.</p> <p>3. ESC value is based on installation location less than 1 mile (1.61 km) from a salt water source. If the project site is proximate to a pollution source, use the next highest ESC if available.</p>			

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## APPENDIX B GLOSSARY

### B-1

### ACRONYMS

AA&E	Arms, Ammunition, and Explosives
ABA	Architectural Barriers Act
AE	Ammunition and Explosives
AEC	Architect / Engineer / Construction
AFCEC	Air Force Civil Engineer Center
AFMAN	Air Force Manual
AHJ	Authority Having Jurisdiction \1\
BO	Building Official /1/
BIA	Bilateral Infrastructure Agreement
CCR	Criteria Change Request
CECW-EC	Corps of Engineers Civil Works, Chief of Engineering and Construction Division
CP	Cathodic Protection
CPC	Corrosion Prevention & Control
CFR	Code of Federal Regulations \1\
CTR	Component Technical Representative/1/
DCS	Deputy Chief of Staff
DoDD	DoD Directive
DoDI	DoD Instruction
DoDM	DoD Manual
DUSD (I&E)	Deputy Under Secretary of Defense for Installations and Environment
DWG	Discipline Working Group
EI&E	Energy, Installations, and Environment

ESC	Environmental Severity Classification
ESEP	Engineering Senior Executive Panel
ESQD	Explosives Safety Quantity Distance
E.O.	Executive Order
FASS	Facilities Systems Safety
FC	Facilities Criteria
FOUO	For Official Use Only
HQ	Headquarters
HQMC	Headquarters, U.S. Marine Corps
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HNFA	Host Nation Funded Construction Agreements
HVAC	Heating, Ventilation, and Air Conditioning
IBC	International Building Code®
ICC	International Code Council
ICCET	ISO Corrosivity Category Estimation Tool
IEBC	International Existing Building Code®
IECC	International Energy Conservation Code®
IE&E	Installations, Energy, and Environment
IE&L	Installations, Environment, and Logistics
IFC	International Fire Code®
IFGC	International Fuel Gas Code®
IMC	International Mechanical Code®
IPC	International Plumbing Code®
IPMC	International Property Maintenance Code®
IRC	International Residential Code®

MCM	Metal Composite Materials
MDF	Medium Density Fiberboard
NAF	Naval Air Facility
NAVFAC	Naval Facilities Engineering Command
NEC	National Electrical Code®
O&M	Operations and Maintenance
OEBDG	Overseas Environmental Baseline Guidance Document, (DoD 4715.05-G
OSHA	Occupational Safety and Health Administration
OASD	Office of the Assistant Secretary of Defense
OUSD	Office of the Under Secretary of Defense
P.L.	Public Law
RFP	Request for Proposal
RMF	Risk Management Framework
SAP	Special Access Program
SCI	Sensitive Compartmented Information
SOFA	Status of Forces Agreements
SOH	Safety and Occupational Health
USACE	U.S. Army Corps of Engineers
USC	United States Code
UFC	Unified Facilities Criteria
UFGS	Unified Facilities Guide Specifications
USD (AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics

**B-2**                    **DEFINITION OF TERMS**

**Discipline Working Group:** Representatives from the DoD components responsible for the unification and maintenance of criteria documents. (MIL-STD-3007)

**Engineering Senior Executive Panel:** Panel established by the DoD Installations Policy Board to implement the UFC and UFGS system for DoD. The ESEP consists of a representative from the Office of the Assistant Secretary of Defense for Sustainment (OASD (Sustainment)), and the three Service Chiefs of Engineering. (MIL-STD-3007)

**Facilities Criteria:** A criteria document that is not adopted by all services and will be used only by services indicated in the document

**Technical Representative:** Author of a particular criteria document or the working-level representative from another participating organization for a particular document. (MIL-STD-3007)



## APPENDIX C REFERENCES

### AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS

<http://www.ashrae.org>

ANSI/ASHRAE/IES Standard 90.1 \1\ 2013,/1/ *Energy Standard for Buildings Except Low-Rise Residential Buildings*

### AMERICAN SOCIETY OF MECHANICAL ENGINEERS

<http://www.asme.org>

ASME A17.1, *Safety Code for Elevators and Escalators*

ASME A18.1, *Safety Standard for Platform Lifts and Stairway Chairlifts*

### AMERICAN SOCIETY OF SAFETY PROFESSIONALS

<http://www.assp.org>

ANSI/ASSP A1264.1, *Safety Requirements for Workplace Walking/Working Surfaces and Their Access; Workplace, Floor, Wall and Roof Openings; Stairs and Guardrail/Handrail Systems*

ANSI/ASSP Z359.6, *Specifications and Design Requirements for Active Fall Protection Systems*

ANSI/ASSP Z590.3, *Prevention through Design: Guidelines for Addressing Occupational Hazards and Risks in Design and Redesign Processes*

### CODE OF FEDERAL REGULATIONS

29 CFR 1910, Subpart D, *Occupational Safety and Health Standards; Walking-Working Surfaces*

<https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=26668f79b594c912846427d8ee65f9df&mc=true&r=PART&n=pt29.5.1910#sp29.5.1910.d>

### INTERNATIONAL CODE COUNCIL

<http://www.iccsafe.org>

IBC, *International Building Code*, 2018

ICC 300, *Standard for Bleachers, Folding and Telescopic Seating, and Grandstands*, 2017

IEBC, *International Existing Building Code*, 2018

IECC, *International Energy Conservation Code*, 2015 /1/

IMC, *International Mechanical Code*, 2018

IPC, *International Plumbing Code*, 2018

IRC, *International Residential Code*, 2018

## **INTERNATIONAL ORGANIZATION FOR STANDARDIZATION**

<https://www.iso.org/>

ISO 9223, *Corrosion of Metals and Alloys – Corrosivity of Atmospheres – Classification, Determination and Estimation*

## **JOINT CHIEFS OF STAFF**

JP 3-0, *Joint Operations*

[https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3\\_0ch1.pdf?ver=2018-11-27-160457-910](https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_0ch1.pdf?ver=2018-11-27-160457-910)

## **NATIONAL FIRE PROTECTION ASSOCIATION**

<http://www.nfpa.org>

NFPA 1, *Fire Code*

NFPA 54 (ANSI Z223.1), *National Fuel Gas Code*

NFPA 58, *Liquefied Petroleum Code*

NFPA 70, *National Electrical Code*

NFPA 101, *Life Safety Code*

NFPA 285, *Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components*

## **UNIFIED FACILITIES CRITERIA**

<http://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc>

UFC 1-200-02, *High Performance and Sustainable Building Requirements*

UFC 1-201-01, *Non-Permanent DoD Facilities in Support of Military Operations*

UFC 1-201-02, *Assessment of Existing Facilities for Use in Military Operations*

UFC 1-202-01, *Host Nation Facilities in Support of Military Operations*

UFC 1-300-02, *Unified Facilities Guide Specifications (UFGS) Format Standard*

UFC 3-101-01, *Architecture*

UFC 3-110-03, *Roofing*

UFC 3-120-10, *Interior Design*

UFC 3-190-06, *Protective Coatings and Paints*

UFC 3-201-01, *Civil Engineering*

UFC 3-201-02, *Landscape Architecture*

UFC 3-210-10, *Low Impact Development*

UFC 3-220-01, *Geotechnical Engineering*

UFC 3-230-01, *Water Storage and Distribution* \1\ /1/

UFC 3-240-01, *Wastewater Collection*

UFC 3-240-02, *Domestic Wastewater Treatment*

UFC 3-301-01, *Structural Engineering* \1\

UFC 3-301-02, *Design of Risk Category V Structures, National Strategic Military Assets* /1/

UFC 3-401-01, *Mechanical Engineering*

UFC 3-410-01, *Heating, Ventilating, and Air Conditioning Systems*

UFC 3-420-01, *Plumbing Systems*

UFC 3-490-06, *Elevators*

UFC 3-501-01, *Electrical Engineering*

UFC 3-520-01, *Interior Electrical Systems*

UFC 3-530-01, *Interior and Exterior Lighting and Controls* \1\ /1/

UFC 3-550-01, *Exterior Electrical Power Distribution*

UFC 3-560-01, *Electrical Safety, O&M*

UFC 3-570-01, *Cathodic Protection*

UFC 3-580-01, *Telecommunications Building Cabling Systems Planning and Design*

UFC 3-600-01, *Fire Protection Engineering for Facilities*

UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*

UFC 4-010-05, *Sensitive Compartmented Information Facilities Planning, Design, and Construction*

UFC 4-010-06, *Cybersecurity of Facility-Related Control Systems*

UFC 4-021-01, *Design and O&M: Mass Notification Systems*

FC 4-721-10N, *Navy and Marine Corps Unaccompanied Housing*

## **UNITED STATES ACCESS BOARD**

ABA Standards

<http://www.access-board.gov/attachments/article/1029/ABASTandards.pdf>

## **UNITED STATES AIR FORCE**

<http://www.e-publishing.af.mil>

AFMAN 91-201, *Explosives Safety Standards*

AFMAN 91-203, *Air Force Occupational Safety, Fire and Health Standards*

## **UNITED STATES ARMY**

<https://armypubs.army.mil/>

DA PAM 385-64, *Ammunition and Explosives Standards*

AR PAM 385-16, *System Safety Management Guide*

## **UNITED STATES DEPARTMENT OF DEFENSE**

*Deputy Secretary of Defense Memorandum for Secretaries of the Military Departments, et al. Subject: Access for People with Disabilities, October 31, 2008*

<http://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-aba-standards/background/dod-memorandum>

DoD 4715.05G, *Overseas Environmental Baseline Guidance Document*

<https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodm/471505g.pdf>

DoD 5200.08-R, *Physical Security Program*

<https://www.esd.whs.mil/DD/DoD-issuances/>

DoDI 6055.01, *DoD Safety and Occupational Health (SOH) Program*  
<https://www.esd.whs.mil/DD/DoD-issuances/>

DoDM 6055.09, *DoD Ammunition and Explosives Safety Standards*  
<https://www.esd.whs.mil/DD/DoD-issuances/>

DoDI 1125.03, *Vending Facility Program for the Blind on DoD-Controlled Federal Property*  
<https://www.esd.whs.mil/DD/DoD-issuances/>

DoDM 5100.76-M, *Physical Security of Sensitive Conventional Arms, Ammunition and Explosives (AA&E)*  
<https://www.esd.whs.mil/DD/DoD-issuances/>

DoDM 5200.01, *DoD Information Security Program*  
<https://www.esd.whs.mil/DD/DoD-issuances/>

DoDM 5205.07 Volume 3, *DoD Special Access Program (SAP) Security Manual: Physical Security*  
<https://www.esd.whs.mil/DD/DoD-issuances> /1/

MIL-STD-3007G, *Standard Practice for Unified Facilities Criteria and Unified Facilities Guide Specifications*, 1 November 2019  
<http://www.wbdg.org/ccb/FEDMIL/std3007g.pdf> /1/

*OUSD Memorandum. Subject: Department-Wide Policy for Nursing and Lactation Rooms*, 1 November 2016  
[http://www.wbdg.org/FFC/DOD/DOD\\_NursingMothersMemo\\_110116.pdf](http://www.wbdg.org/FFC/DOD/DOD_NursingMothersMemo_110116.pdf)

*OUSD Memorandum for Assistant Secretary(s) of the Army (IE&E), Navy (EI&E), Air Force (IE&L), Directors of Defense Agencies, Directors of Defense Activities, Director, Washington Headquarters Service. Subject: Floodplain Management on Department of Defense Installations*, 11 February 2014 \1\  
[https://www.wbdg.org/FFC/DOD/DUODIE\\_Memo\\_FloodplainMgmt.pdf](https://www.wbdg.org/FFC/DOD/DUODIE_Memo_FloodplainMgmt.pdf) /1/

## **UNITED STATES NAVY**

NAVSEA OP 5, *Ammunition and Explosives Safety Ashore*  
<https://nossa.dc3n.navy.mil/nrws3/> (must be registered user)

## **UNITED STATES OFFICE OF PERSONNEL MANAGEMENT**

*OPM Guide for Establishing a Federal Nursing Mother's Program*  
[www.opm.gov/policy-data-oversight/worklife/reference-materials/nursing-mother-guide.pdf](http://www.opm.gov/policy-data-oversight/worklife/reference-materials/nursing-mother-guide.pdf)