

# UNIFIED FACILITIES CRITERIA (UFC)

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## CRITERIA FORMAT STANDARD



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**UNIFIED FACILITIES CRITERIA (UFC)**

**CRITERIA FORMAT STANDARD**

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NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER CENTER

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## FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 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, its territories, and possessions 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 Military Department's responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Systems Command (NAVFAC), and Air Force Civil Engineer Center (AFCEC) are responsible for administration of the UFC system. Technical content of UFC is the responsibility of the cognizant DoD working group. Defense Agencies should contact the respective DoD Working Group for document interpretation and improvements. 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.

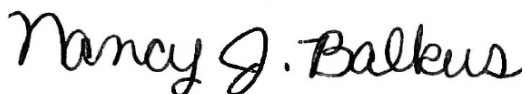
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## **CHAPTER 1 INTRODUCTION**

### **1-1 PURPOSE AND SCOPE.**

This document provides a unified approach to the appearance, formatting and content of Unified Facilities Criteria (UFC) and Facility Criteria (FC) documents. UFC and FC are used to provide technical information to plan, design, construct, operate, and maintain DoD facilities. FCs are criteria documents that are not unified with all Military Departments.

In accordance with the authority in MIL-STD-3007, UFC are prepared by DoD committees called Discipline Working Group (DWG), and are published by the Military Departments under the authority of the Engineering Senior Executive Panel (ESEP).

### **1-2 REISSUES AND CANCELS.**

This UFC reissues and cancels UFC 1-300-01, 18 July 2018.

### **1-3 APPLICABILITY.**

This document applies to the preparation of UFC and FC documents prescribed by MIL-STD 3007.

### **1-4 VARIATIONS IN FORMAT.**

The format prescribed herein is intended to provide uniformity.

Variations in format must be approved by the Coordinating Panel (CP). The DWG will forward the request to vary from the prescribed format to the CP for approval early in the development process.

### **1-5 PUBLICATION.**

Criteria documents are published in electronic media only. The Memorandum of Agreement for the Whole Building Design Guide establishes the Whole Building Design Guide (WBDG) (<http://www.wbdg.org/>) as the sole distribution method for internet access.

Exception: Controlled Unclassified Information CUI documents will not be maintained on the WBDG. A copy of the CUI documents containing the front matter and instructions on how to obtain the entire document will be posted on the WBDG. For example; a copy of UFC 4-010-02 may be obtained, with proper justification, through the USACE Protective Design Center. CUI documents must be marked, handled and distributed in accordance with DODI 5200.48.

#### **1-5.1 Assigning Publication Numbers.**

The DWG responsible for the criteria document will recommend the most appropriate numerical series based on APPENDIX A (for example: UFC 4-010-XX). Series 4

numbering is based on the DoD hierarchical scheme of real property types, functions and Category Groups found in DoDI 4165.03. Ensure proposed number does not duplicate or conflict with publication numbers of other planned, published, or archived criteria. Prior to initial review submittal, the DWG will forward the proposed number recommendation to the CP for approval.

### **1-5.2 Document Size.**

Criteria documents are distributed in electronic format. Therefore; at the discretion of the DWG, documents exceeding 20 Mb in size may be separated into volumes. For criteria separated into volumes, list the issuance title, followed by a colon and the volume-specific title.<sup>1</sup> Each volume will be a separate document with individual tables of content, chapters, appendices and paragraph numbers specific to that volume.

### **1-5.3 Publication Date.**

The DWG coordinates the publication date with the National Institute of Building Sciences (NIBS) after ESEP approval.

## **1-6 DOCUMENT UPDATES.**

Updates to an existing document may be a change or a revision. The responsible DWG will determine whether the update will be a change or a revision.

### **1-6.1 Changes.**

A change amends no more than 25 percent of an existing issuance and has the full authority of the issuance. The 25 percent is based on a single update or the cumulative total of multiple updates. Changes may include the addition of entire chapters or appendices.

- The number of changes are limited to five after which, the document must be revised<sup>2</sup>.  
Exception: UFC 3-701-01 may exceed five changes due to the bi-annual update of the data tables but UFC 3-701-01 must undergo a revision every five years.
- Changes are published upon DWG approval.

### **1-6.2 Identifying Changes.**

Mark the start of changed text with the number of the change enclosed with backslash virgule symbols (**(X\)**) and the end of changed text with forward slash virgule symbols (**(/X)**) in bold type. Provide a space after the beginning mark and the before the end

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<sup>1</sup> DoD Issuances Standards

<sup>2</sup> MIL-STD-962, DEPARTMENT OF DEFENSE STANDARD PRACTICE *DEFENSE STANDARDS FORMAT AND CONTENT*

mark for readability. Respectively, the letter "X" represents the number of the change, see Figure 1-1. Simple typographic or grammar changes do not need to be marked.

**Figure 1-1 Example Marking Changes**

<b>CHAPTER 2 PRELIMINARY DESIGN DATA</b>	
<b>2-1 GENERAL.</b>	
	<p>1\ The need for subsurface drainage and frost protection must be identified during the design stage to enable incorporation of appropriate features into the pavement design.</p> <p>/1/ Verification of design assumptions is important to obtain reliable designs. If during construction any of the site conditions were found different than those assumed in the design, the design may have to be modified. Some site-related factors affect the need for frost protection and the need for subsurface drainage. In this section, investigation of those site factors is discussed.</p>

### **1-6.3 Revisions.**

If more than 25 percent of an issuance requires change, when the number of changes exceed 5, or if there are significant program or project cost implications (for example, updating to new versions of industry standards) the issuance must be a revision. Revisions are approved by the DWG, CP and ESEP. The Preparing Activity will forward the completed criteria document to the CP when the revision has been approved by the DWG and is ready for ESEP approval and signature.

Exception: UFC 3-701-01 may exceed five changes due to the bi-annual update of the data tables but UFC 3-701-01 must undergo a revision every five years.

- Revisions are published upon ESEP approval.

#### **1-6.3.1 Formatting Revision.**

Update to current UFC Template, remove previous recorded changes from the title page, delete previous change markings, and provide a new publication date.

### **1-7 ELECTRONIC FORMAT.**

Criteria documents will be created and modified using the current UFC Template. The UFC Template can be found on the Whole Building Design Guide at: <http://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc>. Published documents are distributed in Portable Document Format (PDF).

#### **1-7.1 UFC Template.**

The UFC Template includes customized styles for chapter headings, subparagraphs, figure titles, table titles, and general text with custom multilevel lists. The customized

styles enable consistent formatting, PDF generation with bookmarks and the ability to generate Table of Contents, List of Figures and a List of Tables.

- For new documents, use the current UFC Template.
- For revisions, update to the current UFC Template.
- For Changes, updating to the current UFC Template is not required.

## **1-7.2 PDF.**

Final criteria documents are published in PDF. The final PDF for publication must have bookmarks for the Table of Contents, Chapters, Appendices, Figures, Tables and level 1 and 2 paragraphs to allow prompt navigation through the PDF. Make the Table of Contents, Chapters and Appendices a level one bookmark. Make the level 1 paragraphs (for example, 4-2) a level two bookmark. Make paragraph level 2 (for example, 4-2.1), Tables and Figures a level three bookmark.

## **1-8 COPYRIGHT RELEASES.**

For copyrighted materials, obtain written permission from the copyright holder. Identify the material properly in the UFC according to the requirements of the copyright holder.

## **1-9 REGISTERED TRADEMARKS.**

Identify all registered trademarks by the appropriate symbol (® or ™).

## **1-10 GLOSSARY.**

APPENDIX B contains acronyms, abbreviations, and terms.

## **1-11 REFERENCES.**

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

## CHAPTER 2 STYLE AND FORMAT

### 2-1 INTRODUCTION.

The style and format is designed to facilitate ease of preparation and use. The DWG is responsible for the format, technical content, and overall quality of its criteria document in accordance with the following guidelines:

- Provide documents that meet the format and content requirements in accordance with UFC 1-300-01.
- Provide technical information in a well-written, straightforward manner.
- Reference non-Government standards to the greatest extent possible and avoid repeating commercially available criteria.
- Clearly state unique government requirements and exceptions to non-Government standards and commercially available criteria. Each exception to the industry standards should be verifiable as to the functional need and to assure it promotes the lowest life cycle cost.
- Maximize functionality while addressing security, sustainability, energy life safety, and health requirements. Using lessons learned and innovative technology, develop the criteria to promote lowest life-cycle cost, maximum environmental responsiveness, energy efficiency, quality of life, and productivity.
- Write criteria to the level of the experienced engineer and architect. Focus on performance criteria. Exclude textbook information, charts and figures, and other information that is available in non-Government standards, commercial and industry references. Documents are not intended to be training manuals or compilations of reference material.
- Exception: Operations and Maintenance criteria may be written in procedural language at the level of the experienced field personnel. Operations and Maintenance criteria may also include textbook information, charts, figures and other information readily needed for use in the document, refer to MIL-STD-38784A
- Generally, larger criteria documents that contain multiple topics may be broken into separate volumes to facilitate updating; see paragraph 1-5.2. However, document size and content must also address the following:
  - User/usage
  - Use in design and construction contracts,
  - Types of projects affected
  - Other documents that reference or work with the criteria document
  - Ease to maintain the criteria

## **2-2 WRITING STYLE.**

Write in a direct, active voice with simple, concise sentences in the present tense. Use language appropriate for the user with the experience level required by the subject matter. Avoid ambiguous, indefinite terms such as "too short" or "relatively simple." Quantify whenever possible. Define what applies before using "applicable."

Avoid using the Latin abbreviations for "for example" (e.g.) and "that is" (i.e.) in text. Write out the lead-in to your example: "for example" or "such as." The use of Latin abbreviations is acceptable within tables and figures. For additional guidance, see Federal Plain Language Guidelines or the Writing Style Guide and Preferred Usage for DoD Issuances.

### **2-2.1 Mood, Tense, and Voice.**

Use the imperative mood (for example, install equipment). Use "must" instead of "shall" to prescribe mandatory requirements, actions and procedures. "Shall" imposes an obligation to act, but may be confused with prediction of future action. "Must" imposes obligation and indicates a necessity to act.

In documents that are likely to become part of legal contracts, use imperative mood or "must" to impose a legal obligation. Use "will" to predict future action. Use "can" and "may" to permit choice and identify guidance. Use "should" to indicate desirable procedures that are advisory in nature. Don't use "he" or "she" or "his" or "her" separately as generic (possessive) pronouns. Use "they" or "their" to avoid gender specificity. Often, rewriting a sentence eliminates the need for repetitive "he or she"; for example, "Information managers complete their training" rather than "the information manager completes his or her training."

### **2-2.2 Abbreviations, Acronyms, and Symbols.**

Refer to the U.S. Government Printing Office, *Style Manual* for standard government abbreviations, acronyms and symbols. Refer to the *Writing Style Guide and Preferred Usage for DoD Issuances* for DoD abbreviations, acronyms. Refer to Joint Publication 1-02 for standard military acronyms and terms.

#### **2-2.2.1 Abbreviations.**

Use abbreviations consistently throughout a document. Spell out proper names on first use, and present the abbreviation immediately following in parentheses; use the abbreviation thereafter. Abbreviations for standard units of measure can be spelled out on the first use or included in the Glossary.

#### **2-2.2.2 Acronyms.**

Use established DoD and industry standard acronyms when the use will improve reader understanding of the text. Provide the complete term the first time it appears, followed by the acronym in parentheses. Then, use the acronym consistently throughout the remainder of the document. The acronyms "DoD," "OSD," and "U.S." do not need to be



established upon first use<sup>3</sup>. Acronyms other than DoD or industry standard must be used a minimum of three times in a document to be established; if the acronym is not used at least three times, spell out the term.

### **2-2.2.3 Symbols.**

Symbols may be used in figures tables, and equations. Do not use symbols in the text; for example, use the word "feet" or the abbreviation "ft.", not the symbol ('). However, Greek symbols, the percent symbol (%) and the degree mark (°) are acceptable to use in the text.

### **2-2.3 Capitalization, Punctuation, Grammar, and Syntax.**

Refer to U.S. Government Printing Office, *Style Manual* for rules on capitalization, punctuation, grammar, and syntax.

### **2-2.4 Metric System of Measurement.**

Provide measurements in English inch-pound units with metric dimensions in parentheses<sup>4</sup> including tables and figures. Calculate metric dimensions to the same level of significance as the English inch-pound units. Refer to IEEE/ASTM SI 10 for metric practices such as methods of converting and rounding.

### **2-2.5 Forms.**

Forms may be developed for specific data collection tasks required to use the criteria. To make photocopying easier, each form should occupy a separate page.

## **2-3 FORMAT.**

The format of criteria documents is standardized for uniformity. Use the format described in this UFC which is preset in the UFC Template.

### **2-3.1 Page Layout.**

Use 8.5- by 11-inch (215 by 280 mm) page size. Foldout sheets should be avoided.

### **2-3.2 Margins.**

Use 1-inch (25 mm) margins left, right and top, 0.75-inch (19 mm) margin on bottom. Position marginal copy (headers and page numbers) 0.5-inch (13 mm) from the top and bottom edge of the page. All text is left-aligned at the margin, including paragraph numbers, except as noted for headers, page numbers, chapter/appendix titles, figure, table, and equation titles.

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<sup>3</sup> WRITING STYLE GUIDE AND PREFERRED USAGE FOR DOD ISSUANCES

<sup>4</sup> SD-10, *Guide for Identification and Development of Metric Standards*

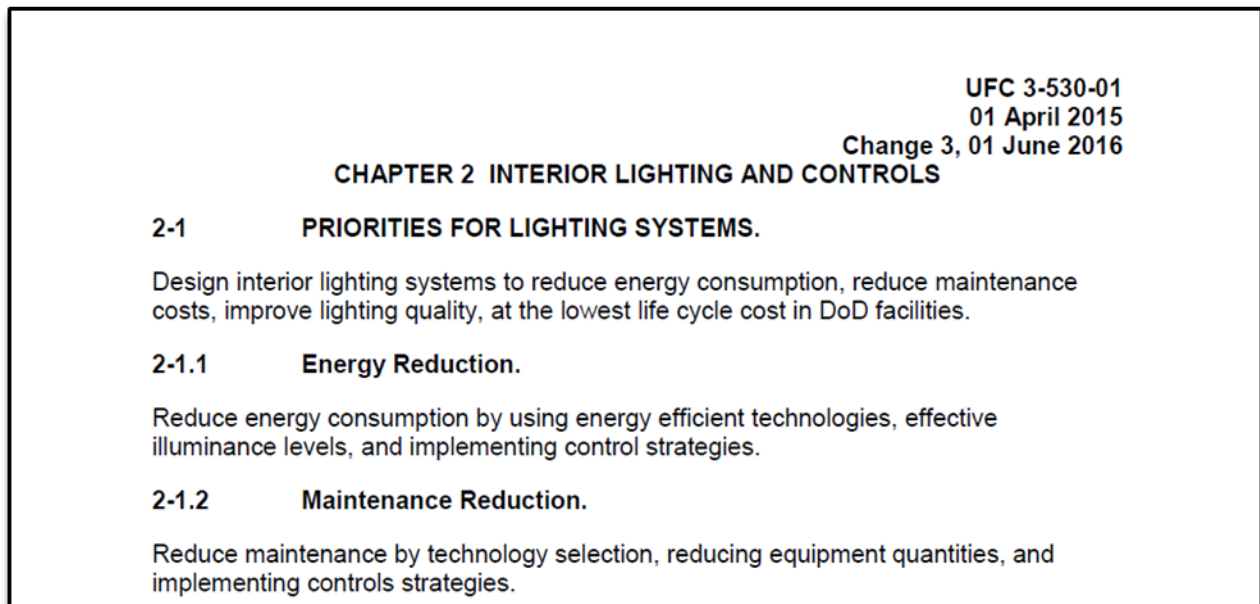
### 2-3.3 Font.

Use 12-point Arial unless otherwise indicated. Ensure color fonts appear legible when printed black and white.

### 2-3.4 Headers.

Each page, including the cover and the title page, will bear the criteria designation and publication number (short title) and the publication date as marginal copy, right-justified, one-half inch from the top of the page. The short title occupies the first line; the publication date appears directly beneath the short title. If the issuance is one volume in a multi-volume issuance, add “[comma] Volume #” after the issuance number (e.g., UFC 1-300-01, Volume 1). If the document is a Change, the change number and date will appear directly below the publication date. For an example, see Figure 2-1.

**Figure 2-1 Example Header**



### 2-3.5 Footers.

All pages starting with the Table of Contents (TOC) must have a footer consisting of the page number. Do not include Chapter or Appendix modifiers with page numbers. Center page numbers horizontally in the bottom of the footer (bottom marginal copy area) of each page.

#### 2-3.5.1 Front Matter.

Page numbers will not appear on the cover, title page, and foreword. Beginning with the first page of the table of contents, number pages consecutively with lowercase roman numerals.

### **2-3.5.2 Main Text**

Beginning with the first page of main text and continuing through the last page of the document (including chapters and appendices), number pages consecutively with Arabic numerals. Do not include chapter numbers in the page numbers.

### **2-3.6 Paragraph Numbering.**

Number all main text and appendix text paragraphs. Use the bold paragraph numbering preset in the UFC Template. Do not change the formatting of the paragraph numbering in the UFC Template. In main text, number paragraphs and subparagraphs consecutively from beginning to end, using a period to separate the numbers representing each breakdown. Where a document is divided into chapters, number each paragraph consecutively within the chapter, beginning each paragraph number with the applicable chapter number followed by a dash and then the paragraph number (for example, 2-1, 2-1.1). Where the document has appendices, number appendix and paragraphs consecutively within each appendix, beginning each paragraph with the letter designation of the appendix followed by a dash and then the paragraph number (for example, A-1, A-1.1). Limit subparagraphs to four numbers separated by periods (for example (2-1.1.1.1)). Generally, if there is a subordinate paragraph there should be a minimum of two subordinate paragraphs.

### **2-3.7 Paragraph Titles.**

Numbered subparagraphs must have a title. Titles of level 1 paragraphs must be bold uppercase. Titles of subparagraphs (level 2 and below) must be bold with initial capital letters only. Indent paragraph titles 1 inch (25mm) from left margin and end with a period. Place the paragraph text flush with the left margin on the line below the paragraph title. For consistency, follow this rule even for numbered and titled paragraphs that will not appear in the Table of Contents.

### **2-3.8 Paragraph Text.**

Use no more than two paragraphs beneath any paragraph or subparagraph title. Place all lines flush with the left margin. Leave a maximum of 12 point of space between paragraphs. This may be reduced to a minimum of 6 point if it is necessary to adjust the content on an individual page.

### **2-3.9 Bullet Styles.**

Choose a bullet style that is appropriate to the context of the material being presented. Use alphabetical or numerical bullets when listing must be followed in order and use symbol bullets when no order is required. Bullets should be used to list items or brief points. They should not substitute for paragraph headings. Bulleted lists exceeding one page should be re-organized under appropriate paragraph headings. Lettered or numbered steps may exceed one page in length, as required. Leave a maximum of 6 point of space between bullets and 12 point before the next paragraph. This may be reduced to a minimum of 6 point if it is necessary to adjust the content to fit on an individual page.

**2-3.10 Tables.**

Use a table to present information that is best communicated in tabular rather than paragraph form. All tables must be referenced in the text. Center tables and position each table after the paragraph which first references it. If this causes the table to break between two pages, the entire table may be placed on the next page. If tables are not able to fit on one page, table headers must be repeated at the top of the following pages. Number tables consecutively within each chapter or appendix, using the chapter number or appendix letter first, followed by a dash (for example: for Chapter 2, Tables 2-1, 2-2, 2-3), see Table 2-1 for an example. Column headings should be bold face type and consider 25% darker shading for column header background and 1-pt line for bottom border of column header row and the table outline, see Table 2-1 and 3-1. Font size may be reduced to a minimum 8-point to enhance the presentation of data within a table. Tables may be rotated to Landscape format if required.

**Table 2-1 Example Table**

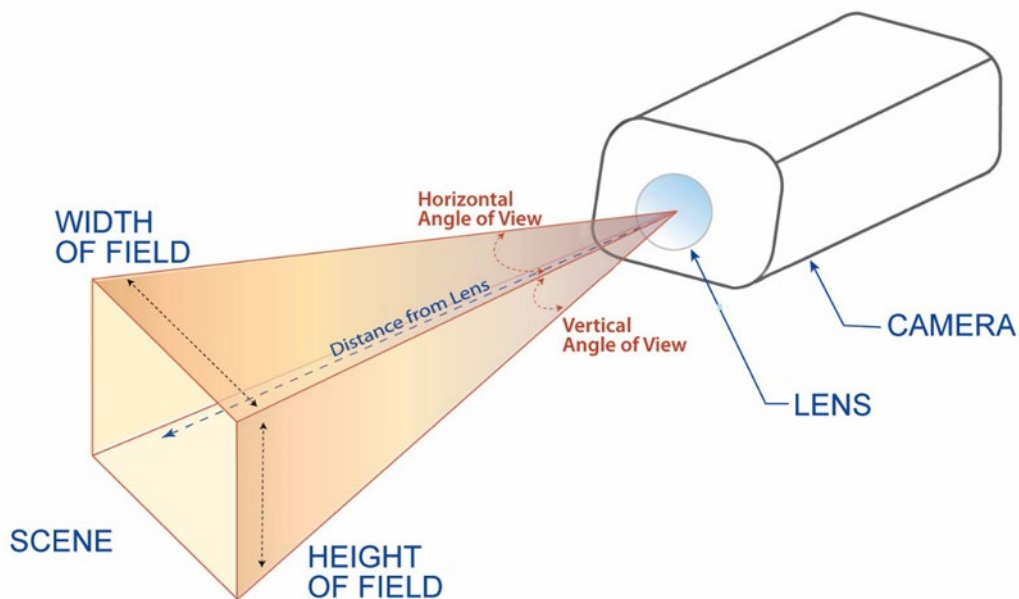
<b>Control Strategy Name</b>	<b>Control Strategy Description</b>
Manual On/Manual Off	The lights are manually turned on and manually turned off. This approach can only be used when other control strategies cannot be implemented due to operational requirements.
Photo sensor on/ photo sensor off	At sunset or shortly after, the lights automatically turn on. At sunrise or shortly before, the lights automatically turn off.
Photo sensor on/ timeclock off	At sunset or shortly after, the lights automatically turn on. At a preset time, the lights turn off.
Timeclock on/ timeclock off	At a preset time, the lights automatically turn on. At a preset time, the lights automatically turn off.
Timeclock on/ vacancy adjust/ timeclock off	At a preset time, the lights automatically turn on. Upon sensing vacancy, the lights switch or dim to 50% of full light output. At a preset time, the lights automatically turn off
Timeclock on/ conflict level adjust/ timeclock off	At a preset time, the lights automatically turn on. Upon sensing a reduction in conflict level (pedestrian or vehicular), the lights switch or dim to 50% of full light output.
User interface on/ conflict level adjust/user interface off	Through a web browser that is wirelessly connected to the lighting system, a user can turn the lights on, adjust brightness level, and turn off.

**2-3.11 Figures.**

Use a figure to present information that is best communicated as an illustration. Figures must be referenced in the text. Figures may be color or black and white drawings or images. Ensure color figures appear legible when printed black and white. Center

figures and position the figure after the paragraph which first references it. If the figure is too large for the remaining space on the page, allow text to fill the remainder of the page and place the figure at the top of the next page. If figures are so numerous they disrupt the flow of text, group them at the end of the chapter. If more than one chapter is affected, group all figures in an appendix. Embed (do not link) figures within the document file. Minimum font size for labels and callouts within figures is 8-point. Number figures similar to tables. Figures may be rotated to Landscape format if required. See Figure 2-2 for an example.

**Figure 2-2 Example Figure**



### 2-3.12 Equations.

Minimum font size for equations is 8-point. Leave a maximum of 24 point of space between equations and 12 point before the next paragraph. This may be reduced to a minimum of 6 point if it is necessary to adjust the content to fit on an individual page. In mathematical equations, use italic for all letter symbols, capitals, lowercase, small capitals, and superiors and inferiors (exponents and subscripts); use roman for figures, including superiors and inferiors.<sup>5</sup>

- If an equation or a mathematical expression needs to be divided, break before +, -, = or other mathematical symbol.
- A short equation in text should not be broken at the end of a line. Space out the line so that the equation will begin on the next line; or better, center the equation on a line by itself.

<sup>5</sup> U.S. Government Printing Office, *Style Manual*

- An equation too long for one line is set flush left, the second half of the equation is set flush right, balance the two parts as nearly as possible.
- When there are two or more equations in a series, center the longest equation in the group and align the equal signs of the addition equations.

If equations do not immediately follow the associated text or if they are referenced in a different paragraph or equation, they must be numbered. Number equations similar to tables, see Equation 2-1 for an example.

**Equation 2-1. Example Equation**

$$T_S = D \left( \frac{vm^{0.5} \cos^{0.8} \theta}{1.125D^{1.5} \log_{10} BHN} \right)^{1.25}$$

Where:

*v* = impact velocity (m/s)

*D* = projectile diameter (mm)

*TS* = thickness of steel plate to prevent perforation (mm)

*θ* = angle of obliquity (degrees)

*m* = mass of projectile (kg)

*BHN* = Brinnell Hardness Number

**2-3.13 Warnings, Cautions, and Notes Headings.**

For Operations and Maintenance documents, it may be necessary to include warnings, cautions, and notes headings in the text to highlight essential operating or maintenance procedure, practice, condition or statement, which, if not strictly observed could result in an injury, death or long term health hazard. For guidance on warnings, cautions, and notes headings, refer to MIL-STD-38784A.

**2-3.14 External References in Text.**

Identify documents referenced in the text by publication number only. Add volume number when applicable. Document titles normally will not be cited in the text; locate full titles in the reference list. When references are issued without number identifiers, include their titles in the text in italics according to the examples in this UFC. If the reference is a web site, provide the name of the web site, followed by the uniform reference locator (URL) in parenthesis. For example, Whole Building Design Guide (<http://www.wbdg.org> )

Do not use criteria to republish material available from another source. Information extracted from other publications for inclusion must not exceed one page in length. Present such extracted material in quotation marks, indented 0.5 inch (12.5 mm) from both right and left margins with 6 point space at the top and bottom, and provide appropriate references.

### **2-3.15 Internal References in Text (Cross-Reference).**

Do not use vague terms such as 'previously discussed,' 'prior,' or 'in following paragraphs. Identify cross-references in the text by the number such as chapter number, paragraph number, figure number, table number or equation number. An example would be, see paragraph 3-2.5 or see Figure 3-2.

### **2-3.16 Footnotes.**

Use footnotes to give credit for a regulatory or functional authority requirement, legal citation, copyrighted, or quoted material. Identify the footnote with an Arabic superscript number. Number footnotes consecutively from 1 to 99, and then begin with 1 again. If the document is divided into chapters, number the first footnote in each chapter as "1." In supplemental sections, such as appendixes, footnotes begin with 1. Footnotes to tables are numbered independently from footnotes to text. Place footnotes at the bottom of the same page containing the referenced text, separating them from the main text by a hairline rule.

## **CHAPTER 3 ORGANIZATION AND CONTENT**

### **3-1 ORGANIZATION.**

Use the following outline:

- Front Matter
  - *Cover*
  - *Title page*
  - *Foreword*
  - *Table of Contents*
- Chapter 1 – Introduction
  - *Background*
  - *Purpose and Scope*
  - *Reissues and Cancels*
  - *Incorporates and Cancels*
  - *Applicability*
  - *Overarching Criteria or Regulatory Requirements*
  - *Regulatory or Functional Authorities*
  - *General Building Requirements*
  - *Cybersecurity*
  - *Glossary*
  - *References*
- Chapter 2 (and following chapters)
  - *Technical requirements*
- Appendix A – Best Practices and other content

- Appendix B – Glossary
- Appendix C – References

### **3-2 FRONT MATTER.**

The front matter includes Cover Page, Title Page, Foreword, Summary Sheet, and Table of Contents. These pages are mandatory for each document including volumes. The latest version of the front matter is maintained in the UFC Template.

#### **3-2.1 Cover Page.**

The cover page will include criteria type, document title, DoD Symbol and distribution statement.

##### **3-2.1.1 Criteria Type.**

Criteria Type is either Unified Facilities Criteria (UFC) or Facilities Criteria (FC) center justified in bold uppercase.

##### **3-2.1.2 Document Title.**

Title will be the title of the criteria in bold uppercase and include modifier when applicable. The first line of the document title will contain only the description of the system, engineering discipline or facility type. Provide a second line modifier to the title when the document is other than design criteria. Modifiers include but are not limited to, Planning, Design and Construction, Operations Manual, Maintenance Manual, or Inspection Procedures. If no modifier, it will be assumed that the document contains design requirements. If possible, the title should not exceed two lines. Do not use the same title for more than one issuance.

For issuances separated into volumes, list the issuance title, followed by a colon and the volume-specific title (Criteria Title: Volume-Specific Title)<sup>6</sup>.

##### **3-2.1.3 DoD Symbol.**

DoD symbol will be centered on page, refer to UFC Template.

##### **3-2.1.4 Distribution Statement.**

Include distribution statement A or C in accordance with DoDI 5230.24, as follows:

- DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.
- DISTRIBUTION STATEMENT C. Distribution authorized to U.S. Government Agencies and their contractors (fill in reason) (date of

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<sup>6</sup> DoD Issuances Standards



determination). Other requests for this document will be referred to the preparing activity.

Most unclassified criteria documents will require Distribution Statement A. Criteria documents determined to CUI, will require Distribution Statement C and be marked, handled and distributed in accordance with DoDI 5200.48. For these Distribution C documents, the reason will be for “administrative” or “operational” use, the date will be the date determination was established (not necessarily the publication date). Requests for these documents using the Freedom of Information Act (FOIA) will be coordinated with the preparing activity in accordance with DoDI 5230.24.

### **3-2.2 Title Page.**

The title page has a standard copyright statement, a list of the participating Activities and the Record of Changes.

#### **3-2.2.1 Participating Activities.**

List the participating activities and identify the Preparing Activity parenthetically. See this UFC for an example.

#### **3-2.2.2 Record of Changes**

Record of Changes is applicable when issuing a Change. List each change on the title page under the Record of Changes. Editorial and simple changes may be listed with a general statement such as, “Modified paragraphs 2-1.5, 2.2.3, 2-2.4, 2-4.1.1, 2-4.2.1, 2-8, 2-8.2, 2-8.3 and 3-2”. Changes that adds requirements, direction or content should be individually identified such as, “Adopts 2015 IBC” or “Added Appendix C Daylighting Best Practices”. Simple typographic or grammar changes do not need to be listed. For Revisions, remove all previous changes from the title page, and delete all change markings in the text of the document.

### **3-2.3 Foreword.**

The foreword is identical for all criteria documents and includes general information and the authorization signatures. Prior to publication, refer to the UFC Template for the latest version of the foreword to include current authorized signature authorities.

Exception: For FC, include the signatures of the applicable DoD Components and substitute FC for UFC as applicable.

### **3-2.4 Summary Sheet.**

The original Summary Sheet including Impact and Unification Issues has been deleted from the Front Matter of new and revised UFCs. Provide a separate Impact and Unification issues form to justify service specific requirements and document criteria impacts. See UFC Template for additional information.

### **3-2.5 Table of Contents**

A Table of Contents (TOC) is mandatory for all criteria documents. As a minimum, the TOC should list Chapters and Appendices with titles and subparagraphs down to second level. Do not list the front matter in the TOC. TOC is generated based on the styles used in the document. Do not manually change the text in the TOC itself. Instead, adjust the appropriate content within the body of the document and update the TOC. The UFC Template will facilitate the automatic generation of the table of contents. If document is one volume in a multi-volume issuance, each volume must have a TOC and each TOC will only include the information for the individual volume.

#### **3-2.5.1 Table of Figures and Tables.**

Include a list figures and tables when there are figures or tables included in the document or volume. If so, format these listings similarly to the rest of the table of contents under the separate headings of "Figures", "Tables". Format the list of Figures and Tables using the UFC Template.

### **3-3 CHAPTER 1 CONTENT.**

Chapter 1 provides an introduction to define its content, applicability, use and includes the overarching criteria or regulatory requirements. In general, Chapter 1 may contain the following sections:

- *Background*
- *Purpose and Scope*
- *Reissues and Cancels*
- *Incorporates and Cancels*
- *Applicability*
- *General Building Requirements*
- *Cybersecurity*
- *References*
- *Glossary*

#### **3-3.1 “Background” Paragraph.**

This paragraph is optional but included when it is important to inform the user why the criteria was created. Here is an example from UFC 1-200-02:

“The Energy Policy Act of 2005, Energy and Independence Security Act of 2007, and Executive Order (EO) 13693 mandate Federal agencies to lead by example, promoting sustainable Federal buildings through environmentally-sound, economically-sound, and fiscally-sound design, construction, and operating decisions. The Federal requirements collectively are referred to as the “Guiding Principles”, and are detailed in “Guiding Principles for Sustainable Federal Buildings and Associated Instructions”, February 2016, which replaces “Guiding Principles for Federal High Performance and Sustainable Buildings”, 2008. Consistent

with UFC program requirements, this UFC integrates DoD requirements (DoDI 4170.11 and other DoD Policies) with High Performance and Sustainable Building (HPSB) Guiding Principles and industry standards for high performance and sustainable buildings.”

### **3-3.2 “Purpose and Scope” Paragraph.**

This paragraph is mandatory and at a minimum, this paragraph defines the purpose and scope of the criteria. Here is an example from UFC 3-530-01:

“This UFC provides requirements for the design of interior and exterior lighting systems and controls based on the Illuminating Engineering Society of North America’s (IES) Lighting Handbook Reference and Application, 10th Edition (hereafter called IES Lighting Handbook), Energy Policy Act of 2005, and current recommended practices. This UFC meets the current IES standard of practice and addresses general lighting requirements for DoD facilities.”

### **3-3.3 “Reissues and Cancels” Paragraph.**

This paragraph is mandatory for document updates. List the UFC number, title, version, and publication date of the current online version this UFC is replacing. Do not include the current publication in the reference list. If the document is a new UFC, remove the entire paragraph

### **3-3.4 “Incorporates and Cancels” Paragraph.**

This paragraph is mandatory for UFCs incorporating and cancelling other documents. List the type, number, title, and publication date of the documents being incorporated and cancelled. If multiple documents are being incorporated and cancelled, list the documents alphabetically on subsequent lines. If the issuance is not incorporating and cancelling another document, remove the entire paragraph.

### **3-3.5 “Applicability” Paragraph.**

This paragraph is mandatory and must define the applicability of the criteria. UFC 1-200-01 defines the applicability of the DoD Building Code and should be used as a baseline. To define applicability, include:

- Facility, building or system type
- Triggers or exceptions
- Service element(s) for non-unified facility criteria.

Here is an example from UFC 3-530-01:

“This UFC applies to interior or exterior lighting systems for construction, repair, and maintenance projects.”

### **3-3.5.2 Facility, Building or System Type.**

Facility, building or system type typically follows the title of the criteria. In some cases, it may be necessary to include modifiers such as temporary, semi-permanent, non-permanent facilities that support Military Operations or non-DoD Tenant Buildings on DoD Installations.

### **3-3.5.3 Triggers or Exceptions.**

In some cases it may be required to include applicable triggers or exceptions in the applicability. Typical examples are:

- Effective date
- Location (example: CONUS, OCONUS, within or outside the United States and its territories)
- Occupancy (example: inhabited, primary gathering, billeting)
- Size (example: For buildings greater than 25,000 SF (2,322 m<sup>2</sup>))
- Replacement cost. Do not use Plant Replacement Value (PRV)
- Acquisition method (example: Military Construction, Public Private Venture, leases)

### **3-3.6 “Overarching Criteria or Regulatory Requirements” Paragraph.**

Additional paragraphs may be included in Chapter 1 to reference overarching criteria, policy or regulatory requirements that are the basis for the requirements determination. Examples are:

- Public Law
- Executive Orders
- DoD Directives, Instructions, Manuals and Directive-Type Memorandums
- Applicable regulatory requirements

### **3-3.7 “Regulatory or Functional Authorities” Paragraph.**

In some criteria documents, it may be necessary to include the regulatory or functional authority for reference, coordination and waiver and exemption coordination. These regulatory or functional authorities may be associated with a facility type or program. The information should include:

- Project or criteria coordination requirements
- Waiver and exemption approval authorities, if other than that defined in MIL-STD-3007.
- Program or regulatory authorities

- Overview of a criteria or policy that are linked together to include their hierarchy.

The following example is from the FC for Navy Child Development Centers:

**“1-7 REGULATORY AUTHORITIES.**

The program regulatory authorities are included below.

**1-7.1 Military Authorities.**

The comprehensive authorities having jurisdiction for CDCs are the following:

**1-7.1.1 Navy.**

The following authorities must approve the acquisition methodology, the design team composition, site selection, facility requirements, the DD Form 1391, concept development, and the final design-build request for proposal (RFP) or final design:

- Commander of Naval Installations Command (CNIC) N926 Child and Youth Programs, and N944 Fleet and Family Readiness, Integrity Drive, Millington, TN 38055-6560.
- NAVFAC FAC/FEC

Planners must contact N926 and N944 during planning development and prior to final signature of the DD Form 1391.

**1-7.1.2 Marine Corps.**

The following authorities must approve the acquisition methodology, the design team composition, site selection, facility requirements, the DD Form 1391, concept development, and the final DB RFP or final design:

- HQMC, Marine Corps Installations Command (GF-4)
- HQMC, Marine and Family Programs Division (MFY-3)
- HQMC, Semper Fit and Exchange Services Division (MRD)”

**3-3.8 “General Building Requirements” Paragraph.**

The General Building Requirements paragraph is mandatory for all design criteria documents. Refer to the UFC Template for the latest version of the standard paragraph. The current version contains the following:

“Comply with UFC 1-200-01, *DoD Building Code (General Building Requirements)*. UFC 1-200-01 provides applicability of model building

codes and government unique criteria for typical design disciplines and building systems, as well as for accessibility, antiterrorism, security, high performance and sustainability requirements, and safety. Use this UFC in addition to UFC 1-200-01 and the UFC and government criteria referenced therein.”

### **3-3.9 “Cybersecurity” Paragraph.**

The Cybersecurity paragraph is mandatory for all design criteria documents that include control systems. Refer to the UFC Template for the latest version of the standard paragraph. The current version contains the following:

“All facility-related control systems (including systems separate from a utility monitoring and control system) must be planned, designed, acquired, executed, and maintained in accordance with UFC 4-010-06, and as required by individual Service Implementation Policy.”

### **3-3.10 “Non-Government Standard Modification” Paragraph.**

For criteria intended to amend, delete, replace or supplement a building code or a non-government standard, include a paragraph similar to the following:

#### **“1-4 2015 IBC and ASCE/SEI 7-10 Modifications.**

UFC 1-200-01 uses and supplements 2015 IBC as the building code for DoD. Chapter 2 of this UFC further modifies the IBC for structural-specific design requirements and is organized by the chapter of IBC that each section modifies. Chapter 3 of this UFC further modifies ASCE/SEI 7-10 for structural-specific design requirements and is organized by the chapter of ASCE/SEI 7 that each section modifies. The 2015 IBC and ASCE/SEI 7-10 section modifications are one of four actions, according to the following legend:

[Addition] – Add new section, including new section number, not shown in 2015 IBC or ASCE/SEI 7-10.

[Deletion] – Delete referenced 2015 IBC or ASCE/SEI 7-10 section.

[Replacement] – Delete referenced 2015 IBC or ASCE/SEI 7-10 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 2015 IBC or ASCE/SEI 7-10.”

The section modifiers are identified at the end of the paragraph title. Use the level one and two paragraphs to identify the primary code sections. The third level paragraphs may be the code paragraphs. Here is an example:

**“2-4 CHAPTER 19 – CONCRETE.**

**2-4.1 Section 1901 – GENERAL.**

**1901.7 - Construction Joints [Addition]**

Provide construction, contraction, and expansion joints in structures in accordance with ACI 224.3R and ACI 318, Section 26.5.6.

**1901.8 – Tension Ties [Addition]**

Where reinforcement is used as a tension tie, splices must be made with a full mechanical or full welded splice per ACI 318 Section 25.4.

**1901.9 – Drying Shrinkage [Addition]**

Concrete drying shrinkage must be determined for the approved concrete mixture per ASTM C157/C157M as modified by ACI 364.3R and must not exceed 0.05.”

**3-3.10.1 Tables, Figures and Equations from Non-Government Standards.**

Tables, Figures and Equations that are taken from or modified from a non-government standard may use the designation from the Non-Government Standard. The Tables and Figures from the non-government standard do not have to be listed in the Table of Figures or Table of Tables.

**3-3.10.2 Commentary.**

Limited commentary is allowed when modifying non-government standard to explain or provide the rationale for the standard modification. Commentary should be brief and to the point. Provide a commentary paragraph in chapter 1 and precede commentary with a “[C]” and highlight the narrative with 25% gray. The following example is from UFC 3-310-04. **“1-6 COMMENTARY.**

Limited commentary has been added to the chapters. Section designations for such commentary are preceded by a “[C]” and the commentary narrative is highlighted with light gray”

**[C] 2-1613.1 [Supplement] Scope**

Although Chapter 14 of ASCE 7-10 is not adopted by the 2015 IBC, occasional references to ASCE 7-10 Chapter 14 sections are made in this UFC.

### **3-3.11 “Glossary” Paragraph.**

A Glossary is mandatory for all criteria documents using acronyms other than “DoD,” “OSD,” or “U.S.”. The Glossary is always in the second to last appendix. When referring to the Glossary in text, always capitalize “Glossary.” List the acronyms, abbreviations and terms that are cited in the text to include the appendices. If the definition of a term has a source, provide citation. Refer to the UFC Template for the latest version of the standard paragraph. The current version contains the following:

“Appendix X contains a list of acronyms, abbreviations, and definitions”.

### **3-3.12 “References” Paragraph.**

A reference list is mandatory for all criteria documents that refer to other documents or sources. The reference list is always in the last Appendix. List all publications cited in the text, including appendices in the reference list<sup>7</sup>. Do not include references that are not referenced in the text. Refer to the UFC Template for the latest version of the standard paragraph. The current version contains the following:

“Appendix X contains a list of references used in this document. The publication date of the code or standard is not included in this document. Unless otherwise specified, the most recent edition of the referenced publication applies.”

In some cases it may be warranted to include additional sources of information about the criteria subject. See 3-7.6 for information on supplemental resources.

## **3-4 TECHNICAL CHAPTERS.**

The technical chapters provide the technical requirements for the criteria starting with Chapter 2. Additional chapters may be added depending on the organization of the subject matter. For example, if discipline-specific criteria include interior and exterior systems, a separate chapter may be provided for each system. Include the unique government requirements and any modifications to non-government standards or existing criteria in the technical chapters. Minimize and streamline content by:

- Including only the technical requirements
- Utilizing performance criteria to the greatest extent possible
- Referencing non-government standards to the greatest extend possible
- Referencing other criteria documents to the greatest extend possible
  - Do not include content from UFC 1-200-01
  - Do not include content contained in the core UFC
- Locating supporting information, best practices and guidance in the Best Practices or other appendices

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<sup>7</sup> DoD Issuances Standards



### **3-4.2 Exceptions.**

An exception is something that is excluded from a criteria requirement and is identified within the criteria. Exceptions can be described in the requirement or listed after the requirements. Follow the methodology in the International Building Code (IBC) to identify exceptions. Example from the IBC:

- “Stages greater than 1,000 square feet in area (93 m<sup>2</sup>) shall be equipped with a Class III wet standpipe system with 1-1/2-inch and 2-1/2-inch (38 mm and 64 mm) hose connections on each side of the stage.”
- “Exception: Where the building or area is equipped throughout with an automatic sprinkler system, a 1-1/2-inch (38 mm) hose connection shall be installed in accordance with NFPA 13 or in accordance with NFPA 14 for Class II or III standpipes.”

### **3-4.3 Facility Systems Safety.**

Safety is an important component of maintaining and operating DoD facilities and must be incorporated in criteria development and the design process. Incorporating facility system safety in criteria and ultimately the design process will provide the greatest opportunity to reduce risk at the lowest life cycle cost. Therefore, criteria must incorporate concepts from ANSI/ASSE Z590.3, which provides guidance for a life-cycle assessment and a design model that balances environmental and occupational safety and health goals over the life span of a facility.

### **3-4.4 3-4.3 Multi-Disciplinary and Facility-Specific Design Criteria.**

Multi-disciplinary and facility-specific design criteria must convey a wide variety of information. Organize the information in the following order.

- Sustainability and Energy-High Performance and Sustainable Building Requirements (Only if information is needed above what is covered in UFC 1-200-01)
- Physical Security and Antiterrorism (Only if information is needed above what is covered in UFC 1-200-01)
- Architecture
- Interior Design
- Civil Engineering
- Landscape Architecture
- Geotechnical Engineering
- Structural Engineering
- Mechanical Engineering
- Electrical Engineering

- Fire Protection

### **3-4.4.2 Functional Data Sheets.**

A Functional Data Sheet (FDS) is a table intended to provide design criteria for a specific room or space. FDSs are not required if the minimum design criteria is provided in UFC 1-200-01, the applicable core criteria documents or the contents of the technical chapters of the facilities type criteria. The criteria in the FDS should be performance based when possible. For example, do not indicate that an interior wall must be concrete masonry unit (CMU) because CMU may not be standard construction in regions outside the U.S. Instead, describe the desired performance. An example for an interior CMU wall could be “durable wall assembly that is resistant to physical damage, moisture, insects and fire”. If required, the FDSs are provided in a separate chapter. See Figure 3-1 for an example of a blank FDS. The FDS generally follows the Unifomat II/Work Breakdown Structure (WBS). The Interior Construction/Built-In Equipment category includes anything physically attached or plumbed to the building such as counters, cabinets, casework, toilet accessories, window shades or blinds, and recessed projection screens. The Furnishings and Equipment category includes loose or moveable items that have no permanent connection to the structure of a building or utilities such as desks, chairs, and shelving.

The Functional Data Sheets are intended to provide the minimum requirements for the respective rooms and spaces for the designer, planner, or RFP preparer. These minimum requirements apply in addition to the requirements of the criteria document and the referenced documents. Blank spaces found in the Functional Data Sheets indicate building components or systems should follow standard guidance per UFC 1-200-01.

Figure 3-1 Example Functional Data Sheet

Description/Usage	
Ceiling Height	
Windows	
Doors	
Interior Construction / Built-in Equipment	
Finishes	Walls
	Floor
	Base
	Ceiling
Plumbing	
HVAC	
Fire Protection and Life Safety	
Power	
Lighting	
Telecommunications	Telephone
	Data
	CATV
Security	IDS
	ACS
	VIDEO
Acoustics	
Furnishings and Equipment	
Special Requirements	
Adjacencies / Location within Facility	
	For Use during project execution by appropriate Service
Occupancy	Staff
	Other
Min. net Ft <sup>2</sup> (m <sup>2</sup> )	

**3-5 “BEST PRACTICES” APPENDIX.**

Best Practices; if required, begins with Appendix A. Do not include requirements in the Best Practices. Best Practices appendices are not intended to be a textbook or to repeat information from industry standards and other non-government references. The Best Practices appendix contains commentary and guidance which are not enforceable in contracts. The main purpose is to communicate proven facility solutions, systems, and lessons learned, but may not be the only solution to meet the requirement. In general, follow the associated formatting and content in the associated technical chapter. For example, if there were a technical chapter for interior systems and one for exterior systems, then the best practices should be separated into two appendices. Include the following at the beginning of the any Best Practices appendix,

“The Best Practices Appendix is considered to be guidance and not requirements. Its main purpose is to communicate proven facility solutions, systems, and lessons learned, but may not be the only solution to meet the requirement.”

### **3-6 “GLOSSARY” APPENDIX.**

The Glossary is always the second to last appendix<sup>8</sup>. It is broken up into two parts, Acronyms and Abbreviations and Definitions, as appropriate. Present acronyms as they appear within the UFC text; for example, ESEP, CUI, kPa, mm. If the Acronym or definition of a term has a source, provide citation. An example is included in UFC Template. Use the font, spacing, and alignment provided in the template.

### **3-7 “REFERENCES” APPENDIX.**

The reference list always the last Appendix.<sup>8</sup> Use the Appendix to list references in alphabetical order. Generally, include a standard designation, title, and publisher. Specific information for different reference types, and the order to present this information, is provided in the paragraphs below.

If the appendix is several pages, consider breaking the references into categories. For example, a document may use the categories "Government" and "Non-government"; or it may categorize the references by military agencies: "Air Force," "Army," and "Navy" or Standards organization. Choose categories that break the references into manageable lists that are logical for the user. An example is included in UFC Template. Use the font, spacing, and alignment provided in the template.

#### **3-7.1 Publisher Information.**

Provide the user with the necessary publisher information to obtain the reference. For the purposes of this UFC, "publisher" is defined as the entity with control and authority over distribution. In cases where more than one entity wields such control and authority, list the lead or authoring entity as publisher. If the reference can only be obtained from a single source, include the address, telephone number, or web site. If this information is not listed, it will be assumed that the reference may be obtained through the webs search or the normal means of obtaining any book or magazine.

#### **3-7.2 Government Standards.**

List government standards (UFC, Military, or Federal Standards, or other government standards or specifications) using the appropriate standard designation (UFC 1-200-01, MIL-STD-3007), followed by the title in italics and web site if applicable.

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<sup>8</sup> DoD Issuances Standards

### **3-7.3 Non-government Standards.**

List non-government standards (for example, ASTM Standards, ASME Standards) in alphabetical order using the appropriate standard designation (ASTM A 38) followed by the title in italics and web site, if applicable.

### **3-7.4 Books and Periodicals.**

If the reference is a book or a complete journal, list these documents in alphabetical order by title in italics, author name, publisher and web site, if applicable.

If the reference is a distinct portion of a book or journal (an article or a chapter,) list in alphabetical order by title in quotation, followed by the title in italics, the author's name, publisher, and web site, if applicable.

### **3-7.5 Web Sites.**

If the reference is a web site, list in alphabetical order by the name of the web site in all upper case, followed by the uniform reference locator (URL).

### **3-7.6 Supplemental Resources.**

It may be warranted to include additional sources of information about the criteria subject, such as web sites or journals that publish new findings about a subject on a regular basis. In such cases, include these resources in a separate appendix titled "Supplemental Resources," and list in the same manner as for References. Limit supplemental resources to a single page.

### **3-8 "INDEX" APPENDIX.**

An index is not required and is not to be included. Indexes are difficult to develop and maintain, and electronic format allows for simple searches to locate occurrences of words and phrases.

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## APPENDIX A NUMBERING OF UNIFIED FACILITIES CRITERIA

### A-1 UFC SERIES 1 - POLICY, PROCEDURES, AND GUIDANCE.

- 1-100 Series - General
- 1-200 Series - Policy
- 1-300 Series - Procedures and Guidance
- 1-400 Series - Reserved
- 1-500 Series - Reserved
- 1-600 Series - Reserved
- 1-700 Series - Reserved
- 1-800 Series - Reserved
- 1-900 Series – Miscellaneous

### A-2 UFC SERIES 2 - MASTER PLANNING.

- 2-100 Series - Comprehensive Master Planning
- 2-200 Series - Land Use Planning
- 2-300 Series - Utility System Planning
- 2-400 Series - Transportation System Planning
- 2-500 Series - Spatial Data Systems
- 2-600 Series - Installation Design Guides
- 2-700 Series - Outdoor Recreation Planning
- 2-800 Series - Planning in the Noise Environment
- 2-900 Series - Reserved

### A-3 A-3 UFC SERIES 3 - DISCIPLINE-SPECIFIC CRITERIA.

#### A-3.1 3-100 Series - Architecture and Interior Design.

- 3-101 General
- 3-110 Architectural Design
- 3-120 Interior Design
- 3-130 Arctic and Subarctic Construction
- 3-140 Reserved
- 3-150 Reserved
- 3-160 Reserved

- 3-170 Reserved
- 3-180 Reserved
- 3-190 Miscellaneous

**A-3.2 3-200 Series - Civil / Geotechnical / Landscape Architecture.**

- 3-201 General
- 3-210 Site Planning and Design
- 3-220 Geotechnical
- 3-230 Water
- 3-240 Sanitary
- 3-250 Vehicle Roadway Design
- 3-260 Airfield Pavements
- 3-270 O&M for Airfield Pavements
- 3-280 Environmental Remediation
- 3-290 Miscellaneous

**A-3.3 3-300 Series - Structural and Seismic Design.**

- 3-301 General
- 3-310 Structural Design Criteria
- 3-320 Structural Design Guidance
- 3-330 Structural Design Commentary
- 3-340 Hardened Structures – Conventional Weapons Effects
- 3-350 Hardened Structures – Nuclear Weapons Effects
- 3-360 Reserved
- 3-370 Reserved
- 3-380 Reserved
- 3-390 Miscellaneous

**A-3.4 3-400 Series - Mechanical.**

- 3-401 General
- 3-410 HVAC
- 3-420 Plumbing Systems
- 3-430 Central Plants and Energy Distribution Systems
- 3-440 Renewable Energy Systems



- 3-450 Acoustics and Vibration Control
- 3-460 Fuel Storage and Distribution Systems
- 3-470 Energy Monitoring and Control Systems
- 3-480 Reserved
- 3-490 Miscellaneous

**A-3.5 3-500 Series - Electrical.**

- 3-501 General
- 3-510 Foreign Voltages
- 3-520 Interior Electrical Systems
- 3-530 Lighting Design and Controls
- 3-535 Airfield Lighting Systems
- 3-540 Electric Power Generation
- 3-550 Electric Power Supply and Distribution
- 3-555 400Hz Power Systems
- 3-560 Electrical Safety
- 3-570 O&M: Cathodic Protection
- 3-575 Lightning Protection
- 3-580 Telecommunications
- 3-590 Miscellaneous

**A-3.6 3-600 Series - Fire Protection.**

- 3-601 General
- 3-610 Reserved
- 3-620 Reserved
- 3-630 Reserved
- 3-640 Reserved
- 3-650 Reserved
- 3-660 Reserved
- 3-670 Reserved
- 3-680 Reserved
- 3-690 Miscellaneous

**A-3.7 3-700 Series - Cost Engineering.**

- 3-701 Pricing Guides
- 3-710 Code 3 Design with Parametric Estimating
- 3-720 Economic Analysis Guides
- 3-730 Programming and Budget Cost Estimating
- 3-740 Construction Cost Estimating
- 3-750 Reserved
- 3-760 Reserved
- 3-770 Reserved
- 3-780 Reserved
- 3-790 Miscellaneous

**A-3.8 3-800 Series - Environmental.**

- 3-801 General

**A-3.9 3-900 Series - Reserved.**

**A-4 UFC SERIES 4 - MULTI-DISCIPLINARY & FACILITY-SPECIFIC DESIGN.**

Series 4 numbering is based on the DoD hierarchical scheme of real property types, functions and Category Groups found in DoDI 4165.03.

**A-4.1 4-000 - General.**

- 4-010 Multi-Disciplinary Requirements
- 4-020 Security Engineering
- 4-021 Electrical Engineering
- 4-022 Civil Engineering
- 4-023 Structural Engineering
- 4-024 Chemical, Biological, Radiological, Nuclear (CBRN)
- 4-025 Waterfront
- 4-026 Threats
- 4-027 Expeditionary/Contingency
- 4-030 Sustainable Development

**A-4.2 4-100 Series - Operational and Training Facilities.**

- 4-120 Liquid Fuel Dispensing Facilities

- 4-121 Aircraft Dispensing
- 4-130 Communications, Navigational Aids and Airfield Lighting
- 4-133 Navigation and Traffic Aids - Buildings
- 4-134 Navigation and Traffic Aids - Other than Buildings
- 4-140 Land Operational Facilities
- 4-141 Operational - Buildings
- 4-150 Waterfront Operational Facilities
- 4-152 Wharfs
- 4-159 Other Waterfront Operational
- 4-160 Harbor and Coastal Operational
- 4-170 Training Facilities
- 4-171 Training Buildings
- 4-179 Training Facilities - Other Than Buildings

**A-4.2.1 4-200 Series - Maintenance and Production Facilities.**

- 4-210 Maintenance
- 4-211 Maintenance – Aircraft
- 4-212 Maintenance – Guided Missiles
- 4-213 Maintenance - Ships, Spares
- 4-214 Maintenance - Tank, Automotive
- 4-215 Maintenance – Weapons, Spares
- 4-216 Maintenance - Ammunition, Explosives, Toxins
- 4-218 Maintenance - Facilities for Miscellaneous Procured Items and Equipment
- 4-220 Production
- 4-229 Production - DoD Maintenance, Repair, and Operation of Installations

**A-4.3 4-300 Series - Research, Development, Test, and Evaluation Facilities.**

- 4-310 Science Laboratories
- 4-390 Other Than Buildings

**A-4.4 4-400 Series - Supply Facilities.**

- 4-420 Ammunition Storage

- 4-440 Storage - Covered
- 4-442 Storage - Covered - Installation and Organizational
- 4-450 Storage - Open
- 4-451 Storage - Open - Depot

**A-4.5 4-500 Series - Hospital and Medical Facilities.**

- 4-510 Medical Center / Hospital

**A-4.6 4-600 Series - Administrative Facilities.**

- 4-610 Administrative Buildings

**A-4.7 4-700 Series - Housing and Community Facilities.**

- 4-710 Family Housing
  - 4-711 Family Housing - Dwellings
- 4-720 Unaccompanied Personnel Housing
  - 4-721 Unaccompanied Personnel Housing - Enlisted Personnel
  - 4-722 Unaccompanied Personnel Housing - Mess Facilities
  - 4-724 Unaccompanied Personnel housing - Officers' Quarters
- 4-730 Community Facilities - Personnel Support and Service
- 4-740 Community Facilities - Morale, Welfare and Recreation - Interior
- 4-750 Community Facilities - Morale, Welfare and Recreation - Exterior
- 4-760 Museums and Memorials

**A-5 4-800 SERIES - UTILITIES AND GROUND IMPROVEMENTS.**

- 4-820 Heat and Refrigeration (Air Conditioning)
  - 4-826 Refrigeration (Air Conditioning) - Source
- 4-830 Sewage and Waste
  - 4-832 Sewage and Industrial Waste - Collection
- 4-860 Railroad Tracks

**A-5.1 4-900 Series – Real Estate.**

- 4-910 Land

– 4-911 Land Purchase, Condemnation, Donation or Transfer

- 4-920 Other Rights

**A-6**

**UFC SERIES 5 - SOFTWARE AND TOOLS.**

- 5-000 - Software and Tools.

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## APPENDIX B GLOSSARY

### B-1

### ACRONYMS.

AFCEC	Air Force Civil Engineer Center
BIA	Bilateral Infrastructure Agreement
CMU	Concrete Mason Unit
CONUS	Continental United States
CP	Coordinating Panel
CUI	Controlled Unclassified Information
DWG	Discipline Working Group
ESEP	Engineering Senior Executive Panel
FC	Facilities Criteria
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HNFA	Host Nation Funded Construction Agreements
IBC	International Building Code
NAVFAC	Naval Facilities Engineering Systems Command
OCONUS	Outside the continental United States
PDF	Portable Document Format
PRV	Plant Replacement Value
SOFA	Status of Forces Agreements
TOC	Table of Contents
USACE	U.S. Army Corps of Engineers
UFC	Unified Facilities Criteria
URL	Uniform reference locator
WBDG	Whole Building Design Guide
WBS	Work Breakdown Structure

## B-2 DEFINITION OF TERMS.

**Continental United States:** United States territory, including the adjacent territorial waters, located within North America between Canada and Mexico. Also called CONUS. (JP 1-02)

**Coordinating Panel:** A four-member panel composed of a senior representative of each Military Department and the Office of the Secretary of Defense (OSD) responsible for day-to-day administration and management of the UFC program under the direction of the ESEP. (MIL-STD-3007)

**Discipline Working Group:** Lead representative from each Military Department responsible for the unification and maintenance of criteria documents. (MIL-STD-3007)

**Engineering Senior Executive Panel:** A four-member panel composed of a Senior Executive Service (SES) representative from each Military Department and the OSD responsible for directing and resourcing the UFC program consistent with statutory requirements and DoD policy. (MIL-STD-3007)

**Facilities Criteria:** FC define functional requirements for specific types of facilities within a Military Department. (MIL-STD-3007)

**Military Department:** One of the departments within the Department of Defense created by the National Security Act of 1947, which are the Department of the Army, the Department of the Navy, and the Department of the Air Force. (JP 1-02)

**Preparing activity (PA):** Lead activity assigned responsibility for the management of the criteria document. (MIL-STD-3007)

**Replacement Cost:** Replacement costs include construction of standard foundations, all interior and exterior walls and doors, the roof, utilities out to the 5-foot line, all built-in plumbing and lighting fixtures, security and fire protection systems, electrical distribution, wall and floor coverings, heating and air conditioning systems, and elevators. Not included are project costs such as design, supporting facility costs, special foundations, equipment acquired with other funding sources (e.g. mission-funded range targets), contingency costs, and supervision, inspection, and overhead (SIOH). Also not included are items generally considered personal property such as computer systems, telephone instruments, and furniture. (UFC 3-701-01)

**Technical Proponent:** A representative from a participating organization responsible for developing or coordinating the project-level effort to update a criteria document. The technical proponent can be a DWG or FWG member or other member of a participating organization or technical agency. (MIL-STD-3007)

**Technical Representative:** Technical working-level representative from another participating organization for a particular document assigned to assist the technical proponent in the DoD component review, unification, and maintenance of a criteria document. (MIL-STD-3007)



## APPENDIX C REFERENCES

### GOVERNMENT

*Federal Plain Language Guidelines*

<http://www.plainlanguage.gov/howto/guidelines/FederalPLGuidelines/index.cfm?CFID=4792523&CFTOKEN=94cc55ae257b82-267642AE-F2AF-25E5-9737544B23B8ECF3&jsessionid=683A517FDE9882FEB4B1840F4C59B70D.chh>

*Principles of Clear Writing*

<http://www.archives.gov/federal-register/write/legal-docs/clear-writing.html>

SD-10, *Guide for Identification and Development of Metric Standards*

<https://www.nist.gov/system/files/documents/pml/wmd/metric/sd10final.pdf>

U.S. Government Printing Office, *Style Manual*

[HTTPS://WWW.GOVINFO.GOV/COLLECTION/GPO-STYLE-MANUAL?PATH=/GPO/U.S./GOVERNMENT/PUBLISHING/OFFICE/STYLE/MANUAL](https://www.govinfo.gov/collection/gpo-style-manual?path=/gpo/u.s./government/publishing/office/style/manual)

### DEPARTMENT OF DEFENSE

<http://www.esd.whs.mil/DD/>

DoDI 5200.48, *Controlled Unclassified Information (CUI)*

DoDI 5230.24, *Distribution Statements on Technical Documents*

DoDI 4165.03, *DoD Real Property Categorization*

Joint Publication 1-02, *DoD Dictionary of Military and Associated Terms*

<http://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/dictionary.pdf>

*Writing Style Guide and Preferred Usage for DoD Issuances*

<http://www.esd.whs.mil/DD/plainlanguage/>

*DoD Issuances Standards*

[http://www.esd.whs.mil/Portals/54/Documents/DD/iss\\_process/standards/DoD\\_Issuances\\_Standards.pdf](http://www.esd.whs.mil/Portals/54/Documents/DD/iss_process/standards/DoD_Issuances_Standards.pdf)

MIL-STD-962, *Department of Defense Standard Practice Defense Standards Format and Content*

<https://www.dsp.dla.mil/Policy-Guidance/Key-Policy-Documents/>

MIL-STD-3007, *Department of Defense Standard Practice Standard Practice For Unified Facilities Criteria and Unified Facilities Guide Specifications*

<https://www.wbdg.org/ffc/dod>

MIL-STD-38784A, *Department of Defense Standard Practice General Style and Format Requirements for Technical Manuals*

<http://www.everyspec.com>

**UNIFIED FACILITIES CRITERIA**

[http://www.wbdg.org/ccb/browse\\_cat.php?o=29&c=4](http://www.wbdg.org/ccb/browse_cat.php?o=29&c=4)

UFC 1-200-01, *DoD Building Code*

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

UFC 3-530-01, *Interior and Exterior Lighting Systems and Controls*

UFC 3-701-01, *DoD Facilities Pricing Guide*

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

**NON-GOVERNMENT**

ANSI/ASSE Z590.3, *Prevention Through Design Guidelines for Addressing Occupational Hazards and Risks in Design and Redesign Processes*

IBC, *International Building Code*

IEEE/ASTM SI 10, *American National Standard for Metric Practice*