

UNIFIED FACILITIES CRITERIA (UFC)

GENERAL BUILDING REQUIREMENTS



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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

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

Change No.	Date	Location
<u>1</u>	<u>Dec 2005</u>	<u>FOREWORD</u>

This UFC supersedes UFC 1-200-01, dated 31 July 2002. This UFC rescinds TI-809-04, dated 31 December 1998 and TI-809-05, dated November 1999.

FOREWORD

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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 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 more 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 Support Agency (AFCESA) 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 should be sent to the respective service proponent office by the following electronic form: [Criteria Change Request \(CCR\)](#). The form is also accessible from the Internet sites 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://dod.wbdg.org/>.

Hard copies of UFC printed from electronic media should be checked against the current electronic version prior to use to ensure that they are current. /1/

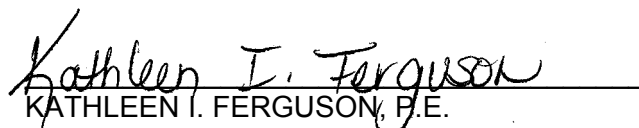
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UNIFIED FACILITIES CRITERIA (UFC) REVISION SUMMARY SHEET

Description of Changes: This update to UFC 1-200-01 represents another step in the joint Services effort to bring uniformity to the military use of existing commercial building codes. Technical representatives of each of the four Services developed this document to require the use of the International Building Code 2003 consistent with the scope of current military requirements and procedures. The International Building Code (IBC) 2000 was adopted with modifications as the basic building code for the Department of Defense, in the first UFC 1-200-01 published 31 July 2002. This revision of that document contains extensive modifications in the following areas:

- The document requires the use of the latest published version of the International Building Code (2003), and replaces the previous IBC 2000.
- Portions of the IBC chapter on Administration procedures were retained in this version, rather than fully deleted as in the previous version.
- Modifications in deference to the continued use of the NFPA Fire and Life Safety Codes were retained and improved.
- New military requirements were incorporated and improved references to other documents were identified for new/revised geotechnical, wind charts, live load data, energy conservation, and antiterrorism standards.

Reasons for Changes: The existing guidance was inadequate for the following reasons:

- The existing UFC 1-200-01 required the use of the IBC 2000 that was revised and replaced in 2003 by the International Code Council.
- The existing UFC did not properly reference and identify recently updated and published commercial structural, seismic and wind data documents.
- The existing UFC did not properly reference and identify recently updated joint Service criteria.
- The existing UFC did not reflect recent changes in the Fire and Life Safety documents published by the NFPA.

Impact: The following direct benefits will result from the update of UFC 1-200-01:

- Creation of a single source reference for modifications to a commercial architectural and structural building code that provides clear and consistent guidance for the design of DoD facilities.
 - Eliminates interpretation and ambiguity that could lead to design and construction conflicts
 - Continues DoD reliance upon NFPA Fire and Life Safety codes, and where they are to be specifically used and applied.
 - Facilitates update and revision as better information becomes available.
- Promotes the use of a single model code and moves the DoD toward more efficient commercial standards. This will typically result in reduced specialization, simplification of contracting, reduced construction time, and increased cost effectiveness.

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CHAPTER 1 INTRODUCTION

1-1 PURPOSE AND SCOPE.

This UFC provides guidance for the use of model building codes for design and construction of Department of Defense (DoD) facilities. Public Law 104-113, *National Technology Transfer and Advancement Act of 1995*, requires Federal use of private sector consensus standards wherever practicable. The goal of the law is to reduce reliance on Federal standards by using industry standards when there is potential to simplify contracting, increase timeliness and cost effectiveness, and promote the safety and welfare of users.

1-2 APPLICABILITY.

This UFC applies to design and construction of all facilities for the Department of Defense. It is applicable to all methods of project delivery, including both design-bid-build and design-build.

1-3 BUILDING CODE.

Use the 2003 International Building Code (IBC-2003), as indicated by Chapter 2, and excluding appendices A through J, as the building code for the Department of Defense for regulating and governing the design and construction of all property, buildings and structures.

1-3.1 The use of a model building code for DoD projects is intended to promote communication in the marketplace, improve competition, and result in cost savings. However, the military often requires higher standards to achieve more stringent life-cycle performance, or to construct facilities that do not exist in the private sector. The modifications to the model code listed in Chapter 2 are based upon those unique military requirements. In the case of conflicts between the model code and the military criteria, use the military requirements.

1-4 OTHER CRITERIA.

Military criteria other than those listed in Chapter 2 may be applicable to specific types of structures, building systems, or building occupancies. Such structures, systems, or buildings must meet the additional requirements of the applicable military criteria.

1-4.1 Antiterrorism.

For antiterrorism requirements, refer to UFC 4-010-01, UFC 4-010-02 and/or Combatant Commander Anti-terrorism/Force Protection construction standards. Project documents must provide only the minimum amount of information necessary for the installation of all elements required for force protection and must not contain information on force protection methods, philosophy, or information on design threats, as this information is considered sensitive and for official use only. For further guidance, contact the government reviewer.

CHAPTER 2 DOD USAGE OF THE INTERNATIONAL BUILDING CODE (IBC)

2-1 CHAPTER 1 – ADMINISTRATION.

Use Chapter 1, except as modified below:

2-1.1 Delete Paragraphs 101.4.1, 101.4.5 and 101.4.6, and Sections 103, 104, 105, 107, 108, 110, 112, 113, 114, and 115.

2-2 CHAPTER 2 – DEFINITIONS.

Use Chapter 2. Definitions apply to terms used in the model codes, and are not intended to replace definitions and terms in military documents.

2-3 CHAPTER 3 – USE AND OCCUPANCY CLASSIFICATION.

Use Chapter 3 and UFC 3-600-01. If any conflict occurs between Chapter 3 and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence.

2-4 CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY.

Use Chapter 4, except as modified below:

2-4.1 Delete Section 412 and refer to applicable DoD and individual military service standards for Aircraft-Related Occupancies.

2-5 CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS.

Use Chapter 5, except as modified below:

2-5.1 Refer to UFC 3-600-01 for limitations on the use of Table 503.

2-5.1 The area limitations in Table 503 may be increased by 300 percent for Air Force facilities when an approved automatic sprinkler system is installed, regardless of building height.

2-6 CHAPTER 6 - TYPES OF CONSTRUCTION.

Use Chapter 6.

2-7 CHAPTER 7 – FIRE-RESISTANCE-RATED CONSTRUCTION.

Use Chapter 7.

2-8 CHAPTER 8 – INTERIOR FINISHES.

Use Chapter 8 and UFC 3-600-01. If any conflict occurs between Chapter 8 and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence.

2-9 **CHAPTER 9 – FIRE PROTECTION SYSTEMS.**

Use UFC 3-600-01 in lieu of IBC Chapter 9.

2-10 **CHAPTER 10 – MEANS OF EGRESS.**

Use UFC 3-600-01 in lieu of IBC Chapter 10.

2-11 **CHAPTER 11 – ACCESSIBILITY.**

Use Uniform Federal Accessibility Standards (UFAS) and Americans With Disabilities Act Accessibility Guide (ADAAG) in lieu of Chapter 11.

2-12 **CHAPTER 12 – INTERIOR ENVIRONMENT.**

Use Chapter 12, except as modified below:

2-12.1 Delete paragraph 1204.1, including the exception, and replace with the following:

- a. Refer to applicable Unified Facility Criteria and individual military service standards for temperature control criteria.

2-12.2 Delete paragraphs 1207.2 and 1207.3, and replace with the following:

- a. Refer to applicable Unified Facility Criteria and individual military service standards for air-borne and structure-borne sound transmission criteria.

2-12.3 Delete paragraph 1208.3 and replace with the following:

- a. 1208.3 Room area. Refer to applicable facility-specific Unified Facility Criteria and individual military service standards for minimum sizes for rooms.

2-12.4 Delete paragraph 1208.4 and replace with the following:

- a. 1208.4 Efficiency dwelling units. Refer to applicable Unified Facility Criteria and individual military service standards for dwelling unit criteria.

2-13 **CHAPTER 13 - ENERGY EFFICIENCY.**

Use Chapter 13 and UFC 3-400-01.

2-14 **CHAPTER 14 – EXTERIOR WALLS.**

Use Chapter 14.

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

Use Chapter 15 and NRCA *Roofing and Waterproofing Manual*.

2-16 **CHAPTER 16 – STRUCTURAL DESIGN.**

Use Chapter 16, except as modified below:

2-16.1 Refer to UFC 3-310-01 for the following structural loading data.

- a. Importance factors for snow load, wind load, and seismic load (Table 1604.5)
- b. Minimum uniformly distributed live loads and minimum concentrated live loads (Table 1607.1)
- c. Ground snow loads used for determining the design snow loads for roofs
- d. Basic wind speeds used for determining the design wind loads for buildings and other structures
- e. Maximum Considered Earthquake ground motion

2-16.2 Seismic design for new buildings must be in accordance with Chapter 16 as modified by UFC 3-310-04.

- a. Refer to Paragraph 2-34.1 for seismic requirements for existing buildings.

2-17 **CHAPTER 17 – STRUCTURAL TESTS AND INSPECTIONS.**

Use Chapter 17, except as modified below:

2-17.1 In Paragraph 1704.1 General, add the following after the first sentence:

- a. The Government may require the Contractor to provide special inspections as part of his work.

2-18 **CHAPTER 18 – SOILS AND FOUNDATIONS.**

Use Chapter 18 and UFC 3-220-01.

2-19 **CHAPTER 19 – CONCRETE.**

Use Chapter 19.

2-20 **CHAPTER 20 – ALUMINUM.**

Use Chapter 20.

2-21 **CHAPTER 21 – MASONRY.**

Use Chapter 21.

2-22 **CHAPTER 22 – STEEL.**

Use Chapter 22.

2-23 **CHAPTER 23 – WOOD.**

Use Chapter 23

2-24 **CHAPTER 24 – GLASS AND GLAZING.**

Use Chapter 24. Refer to UFC 4-010-01 for special glazing requirements.

2-25 **CHAPTER 25 – GYPSUM BOARD AND PLASTER.**

Use Chapter 25.

2-26 **CHAPTER 26 – PLASTIC.**

Use Chapter 26.

2-27 **CHAPTER 27 – ELECTRICAL.**

Use NFPA 70 in lieu of IBC Chapter 27.

2-28 **CHAPTER 28 – MECHANICAL SYSTEMS.**

Use Chapter 28 and Mil Hdbk 1003/3 for NAVY and use UFC 3-410-01FA for ARMY and AIR FORCE..

2-28.1 For fuel gas systems use NFPA 54 and NFPA 58 in lieu of the International Mechanical Code and the International Fuel Gas Code.

2-29 **CHAPTER 29 – PLUMBING SYSTEMS.**

Use Chapter 29 and UFC 3-420-01.

2-30 **CHAPTER 30 – ELEVATOR AND CONVEYING SYSTEMS.**

Delete the chapter. Refer to applicable individual military service standards for elevator and conveying systems criteria.

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

Use Chapter 31.

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

Use Chapter 32.

2-33 **CHAPTER 33 – SAFEGUARDS DURING CONSTRUCTION.**

Delete the chapter.

2-34 **CHAPTER 34 – EXISTING STRUCTURES.**

Use Chapter 34, except as modified below, and UFC 3-600-01. If any conflict occurs between Chapter 34 and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence.

2-34.1 Existing buildings inside the United States, its territories and possessions must comply with ICSSC RP6 / NISTIR 6762 in addition to Chapter 34. Refer to individual military service standards for specific seismic requirements for existing buildings outside the United States.

2-34.2 Seismic evaluation of existing buildings must be in accordance with ASCE 31-03. Rehabilitation of existing buildings for seismic loads must be in accordance with FEMA 356.

2-35 **CHAPTER 35 – REFERENCED STANDARDS.**

Use Chapter 35 and Appendix A.

APPENDIX A REFERENCES

GOVERNMENT PUBLICATIONS:

1. Department of Defense

- United Facilities Criteria Internet Site
<http://dod.wbdg.org>
- UFC 3-220-01, *Geotechnical Engineering Procedures for Foundation Design of Buildings and Structures*. Anticipated publication date for UFC 3-220-01 is December, 2005. For additional information, contact the preparing activity.
- UFC 3-310-01, *Design: Structural Load Data*.
- UFC 3-310-04, *Design: Seismic Design for Buildings*. Anticipated publication date for UFC 3-310-04 is August, 2005. For additional information, contact the preparing activity.
- UFC 3-400-01, *Design: Energy Conservation*
- UFC 3-410-01FA, *Design: Heating, Ventilating and Air Conditioning*
- UFC 3-410-02N, *Design: Heating, Ventilating, Air conditioning and Dehumidifying Systems*
- UFC 3-420-01, *Design: Plumbing Systems*
- UFC 3-600-01, *Design: Fire Protection Engineering for Facilities*
- UFC 4-010-01, *DoD Minimum Antiterrorism Standards for*

Buildings

UFC 4-010-02, *DoD Minimum Antiterrorism Standoff Distances for Buildings*

3. U.S. Architectural and Transportation Barriers Compliance Board
<http://www.access-board.gov/indexes/pubsindex.htm>

UFAS, *Uniform Federal Accessibility Standards*

ADAAG, *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities*

4. Federal Emergency Management Agency
Washington, DC
http://www.degenkolb.com/0_0_Misc/0_1_FEMADocuments/fema356/ps-fema356.html.

FEMA 356, *Prestandard and Commentary for the Seismic Rehabilitation of Buildings*, November, 2000

5. Interagency Committee on Seismic Safety Construction
U.S. Department of Commerce
National Institute of Standards and Technology
Gaithersburg, MD 20899
<http://fire.nist.gov/bfrlpubs/build01/art056.html>

ICSSC RP6 / NISTIR 6762, *Standards of Seismic Safety for Federally Owned and Leased Buildings*, January 2002

NON-GOVERNMENT PUBLICATIONS

1. American Society of Civil Engineers
1801 Bell Drive
Reston, VA 20191-4400
2. International Code Council
5203 Leesburg Pike, Suite 708
Falls Church, VA 22041
3. National Fire Protection Association
1 Batterymarch Park
Quincy, Massachusetts

ASCE 31-03, *Seismic Evaluation of Existing Buildings*,

International Building Code (IBC), 2003

NFPA-54, *National Fuel Gas Code*, 2002

NFPA-58, *National Propane Gas Code*, 2002

NFPA-70, *National Electric Code*, 2002

4. National Roofing Contractors Association
10255 W. Higgins Road, Suite 600
Rosemont, IL 60018

Roofing and Waterproofing Manual, 2003