
Consolidation of Structural Criteria for Military Construction

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Background

- Until recently:
 - Building Officials and Code Administrators International (BOCAI) published the National Building Code (NBC)
 - Southern Building Code Congress International (SBCCI) published the Standard Building Code (SBC)
 - International Council of Building Officials (IBCO) published the Uniform Building Code (UBC)
- These organizations now work through the International Code Council (ICC) to publish "The International Family of Codes" including the International Building Code (IBC)

Background

- National Fire Protection Association (NFPA) continues to publish the Life Safety Code (LSC) and the National Electric Code (NEC) and will soon publish NFPA 5000.
- Unfortunately, the joint venture known as the International Code Council and the NFPA have not succeeded in working together so the NFPA is developing a building code to compete with the IBC.

Background

- DoD needs consistent criteria for all construction
- Mission unique construction not covered in public codes
- Homeland security
- Rapid adoption of criteria for emerging technologies
- Problem solving

OMB Circular A-119

- Standards developed by voluntary consensus standards bodies are often appropriate for use in achieving federal policy objectives and in conducting federal activities, including procurement and regulation. The policies of OMB Circular A-119 are intended to:
 - Encourage federal agencies to benefit from the expertise of the private sector
 - Promote federal agency participation in such bodies to ensure creation of standards that are useable by federal agencies
 - Reduce reliance on government-unique standards where an existing voluntary standard would suffice.

Public Law 104-113, the ``National Technology Transfer and Advancement Act of 1995,"

- In February 1996, Section 12(d) of the Act was passed by the Congress in order to establish the policies of the existing OMB Circular A-119 in law. The purpose of Section 12(d) of the Act is to direct ``federal agencies to focus upon increasing their use of [voluntary consensus] standards whenever possible," thus, reducing federal procurement and operating costs

DoD Solution

- The International Building Code (IBC) has been adopted as the building code for DOD facilities. The IBC is a comprehensive commercial model building code that addresses all aspects of the design of facilities. The General Structural Criteria UFC is intended to:
 - not repeat the information in the IBC, but supplement it with DOD unique requirements (criteria) and best practices (commentary)
 - utilize the same organization and structure as the IBC with guidance referenced to the specific corresponding paragraphs within the IBC, and
 - include references to other structural guidance providing additional detailed topical criteria.

Overall Goal

- Develop a UFC; *Design: General Structural Criteria* that:
 - will provide a consolidated DoD design / construction document for facility designers / contractors.
 - Is Coordinated with the facility design and construction agencies for the Army, Navy, Air Force, and the Marine Corps
 - will be applicable for use by all DoD components and may also include and identify specific information and guidance applicable to individual DoD components where appropriate.

UFC		Preparing Activity	Title	Date(s)	Existing
Series	Number			Pub	Number
3-300	00		STRUCTURAL AND SEISMIC DESIGN		
3-300	10N	NAVFAC	General Structural Requirements	Aug-04	
3-301	00		GENERAL		
3-310	00		STRUCTURAL DESIGN CRITERIA		
3-310	01	USACE	<u>Design: Load Assumptions for Buildings</u>	30-Jun-00 03-Aug-98	TI 809-01
3-310	02	USACE	Structural Design Criteria for Buildings	1-Sep-99	TI 809-02
3-310	04	USACE	Seismic Design for Buildings	31-Dec-98	TI 809-04
3-310	05	USACE	Seismic Evaluation and Rehabilitation for Buildings	Oct-99	TI 809-05
3-310	07	USACE	Design of Cold-Formed Load Bearing Steel Systems and Masonry Veneer/Steel Stud Walls	30-Nov-98	TI 809-07
3-310	08	USACE	Masonry Structural Design for Buildings	Oct-92	TI-809-03

UFC		Preparing Activity	Title	Date(s)	Existing Number
Series	Number			Pub	
3-320	00		STRUCTURAL DESIGN GUIDANCE		
3-320	01	USACE	Welding - Design Procedures and Inspections	1-Mar-00	TI 809-26
3-320	03	USACE	Design and Construction of Conventionally Reinforced Ribbed Mat Slabs (RRMS)	15-Sep-99	TI 809-28
3-320	04	USACE	Structural Considerations for Metal Roofing	30-Aug-98	TI 809-29
3-320	05	USACE	Metal Building Systems	1-Aug-98	TI 809-30
3-320	06	NAVFAC	Weight Handling Equipment	Mass	1038
3-320	06	USACE	Structural Design Criteria for Structures Other Than Buildings	Dec-91	TM 5-809-6
3-320	07	USACE	Concrete Floor Slabs on Grade Subjected to Heavy Loads	25-Aug-87	TM 5-809-12

UFC		Preparing Activity	Title	Date(s)	Existing
Series	Number			Pub	Number
3-330	00		Structural Commentary		
3-330	01	USACE	Commentary on Snow Loads	XXX	TI 809-52
3-330	02	USACE	Commentary on Roofing Systems	1-May-99	TI 809-53
3-330	03	USACE	Seismic Review Procedures for Existing Military Buildings	30-Sep-99	TI 809-51

Problems with Existing Criteria

- Adoption of IBC has created guidance that is overlapping conflicting with many of the existing legacy documents
- Not up to date
- Dead references
- Expensive to maintain

UFC 1-200-01

- The starting point for merging all code modifications to the IBC contained in the DOD structural design documents.
- Is intended to be a very small code adoption document that refers to other discipline specific UFCs for more detailed guidance.
- If any conflict exists between this UFC and additional service specific guidance, the service specific guidance shall take precedence.

UFC 1-200-01
20 June 2005

UNIFIED FACILITIES CRITERIA (UFC)

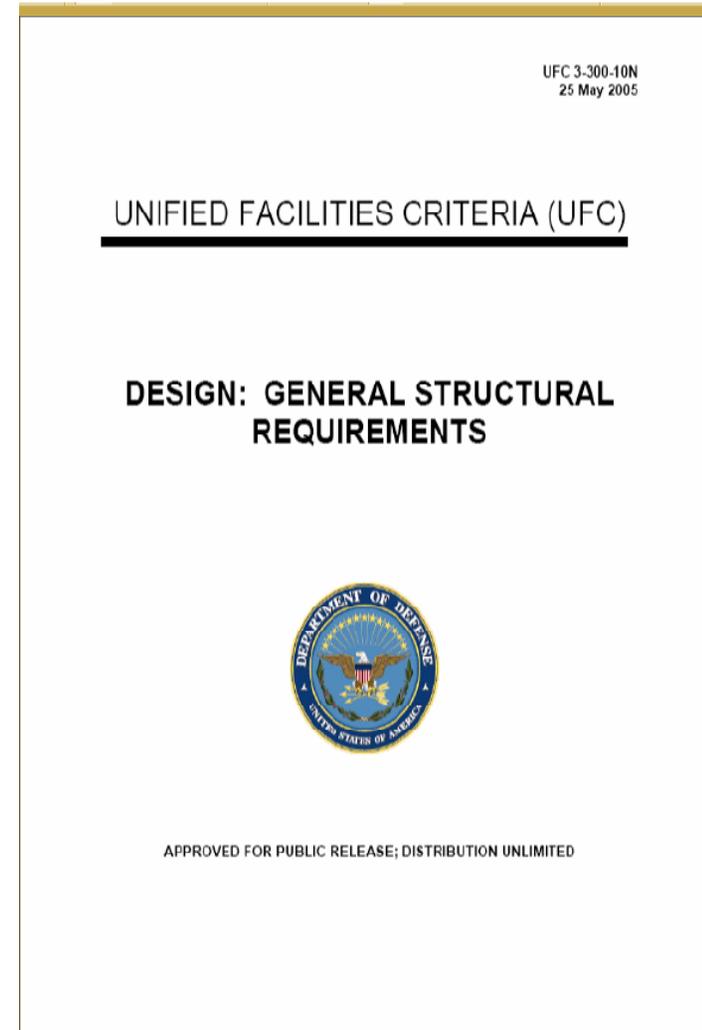
DESIGN: GENERAL BUILDING REQUIREMENTS



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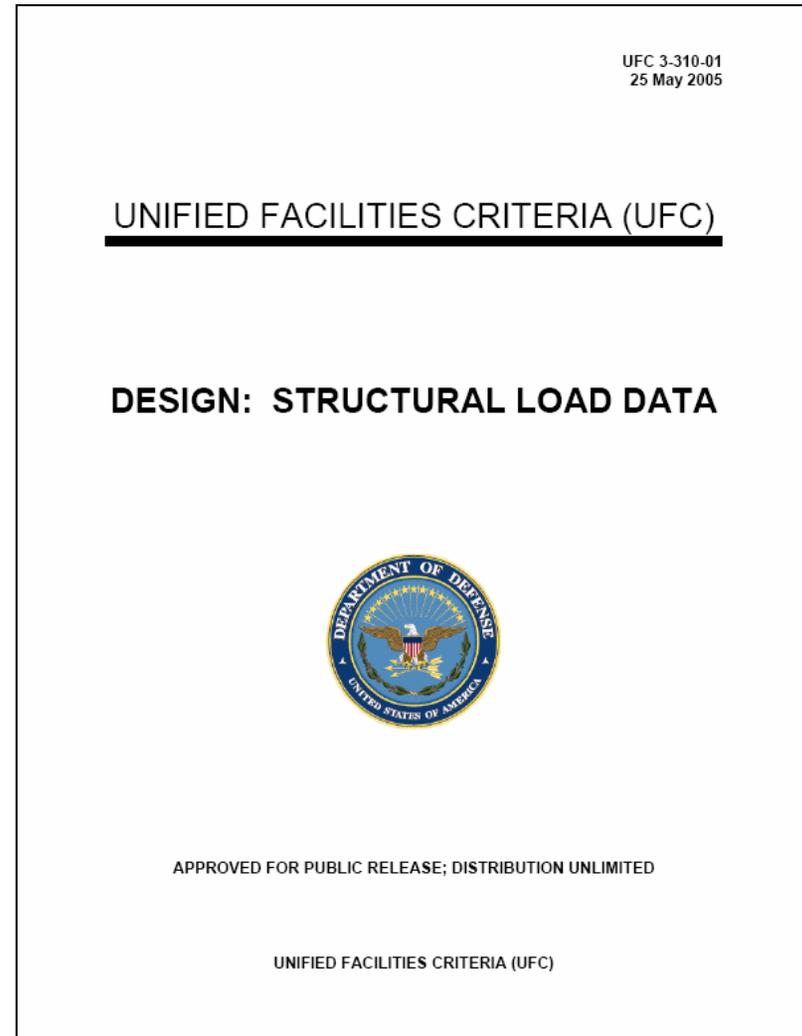
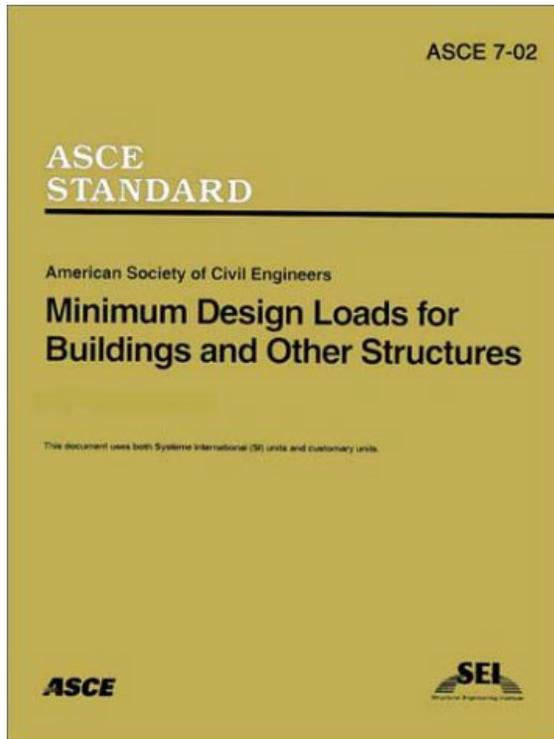
UFC 3-300-10N

- Navy document.
- Updated to eliminate redundancies and refer to the new UFC for progressive collapse prevention for guidance.



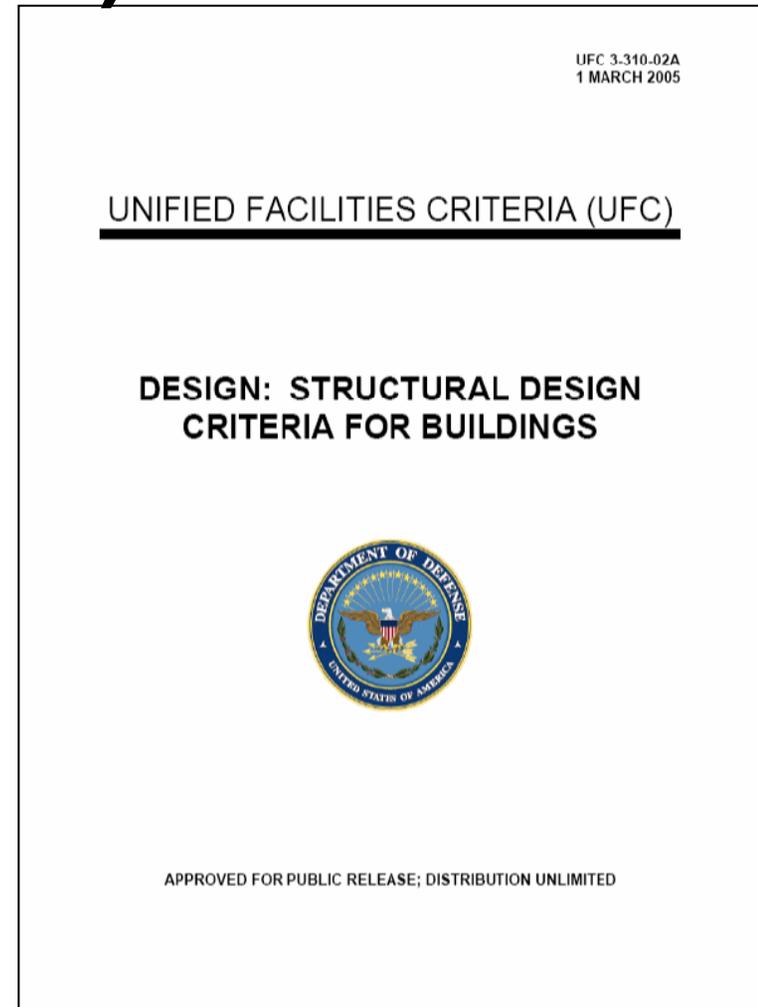
UFC 3-310-01

- ASCE 7 with additions and exceptions
- Continue to publish as a stand alone document



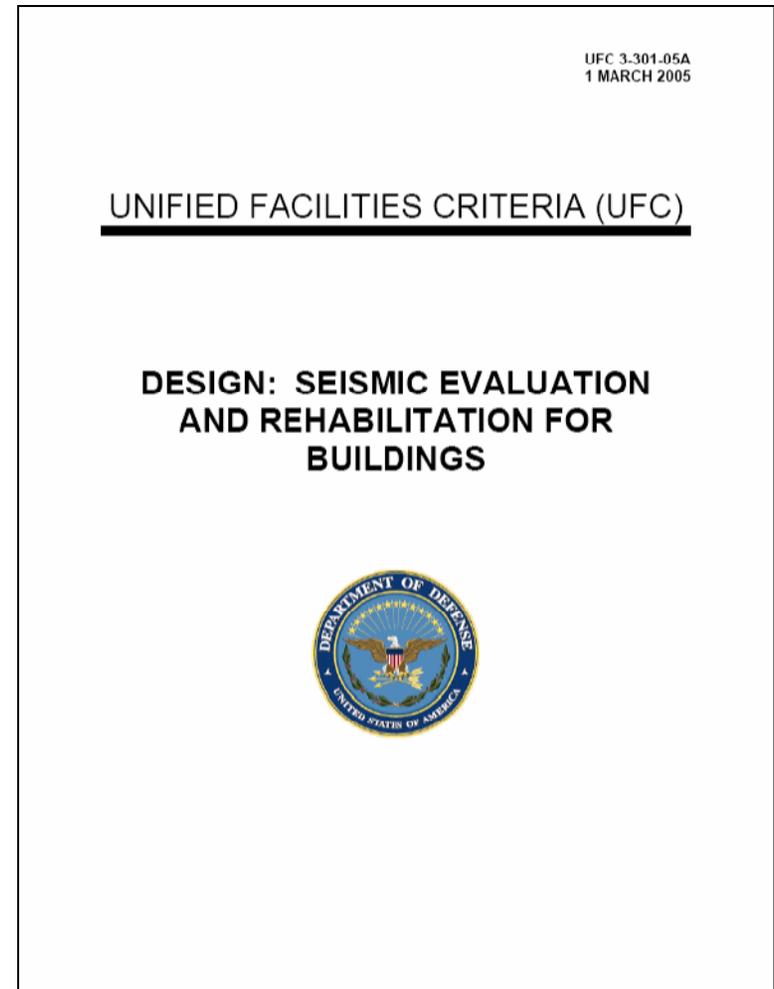
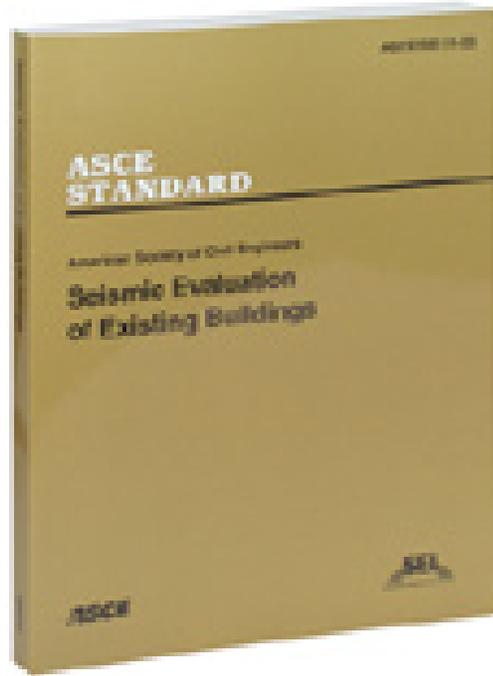
UFC 3-310-02A (TI 809-2)

- Contains more structural design commentary than structural criteria.
- Code material in this document will form the basis of structural DOD-specific code modifications to the IBC.
- Commentary material could be combined into a general structural commentary document with any duplicated material removed.



UFC 3-301-05A (TI 809-05)

- This document will be eliminated, use ASCE 31 for evaluation.



UFC 3-301-04A (TI 809-07)

- Relatively new criteria.
- No current acceptable industry standards
- Will be maintained as a separate document.

UFC 3-310-04A
1 MARCH 2005

UNIFIED FACILITIES CRITERIA (UFC)

**DESIGN: COLD-FORMED LOAD
BEARING STEEL SYSTEMS AND
MASONRY VENEER/STEEL STUD
WALLS**



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UFC 3-320-01A (TI 809-26)

- Last Revised 1 March 2000.
- Very comprehensive, pulls information from several sources into one document
- Combines multiple criteria, including AWS, AISI, ASTM, AISC ...
- No determination has been made regarding future disposition

UFC 3-320-01A
1 MARCH 2005

UNIFIED FACILITIES CRITERIA (UFC)

DESIGN: WELDING – DESIGN PROCEDURES AND INSPECTIONS



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UFC 3-320-02A (TI 809-28)

- A guidance document, not criteria
- Should be incorporated into concrete section of UFC 3-310-02 or as an appendix

UFC 3-320-02A
1 MARCH 2005

UNIFIED FACILITIES CRITERIA (UFC)

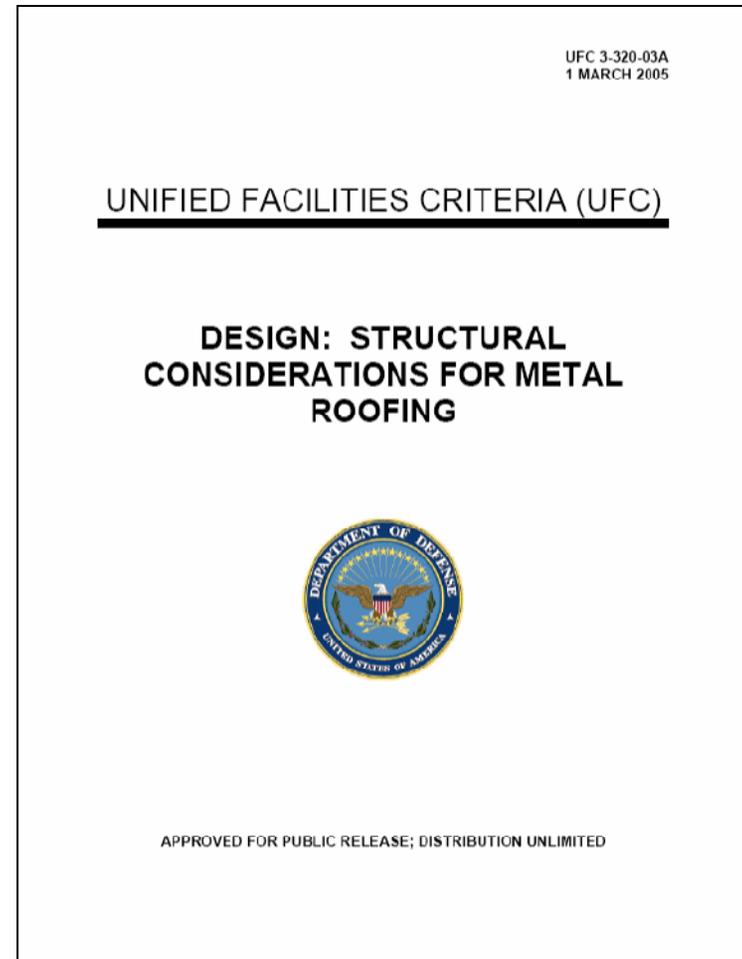
DESIGN: DESIGN AND CONSTRUCTION OF CONVENTIONALLY REINFORCED RIBBED MAT SLABS (RRMS)



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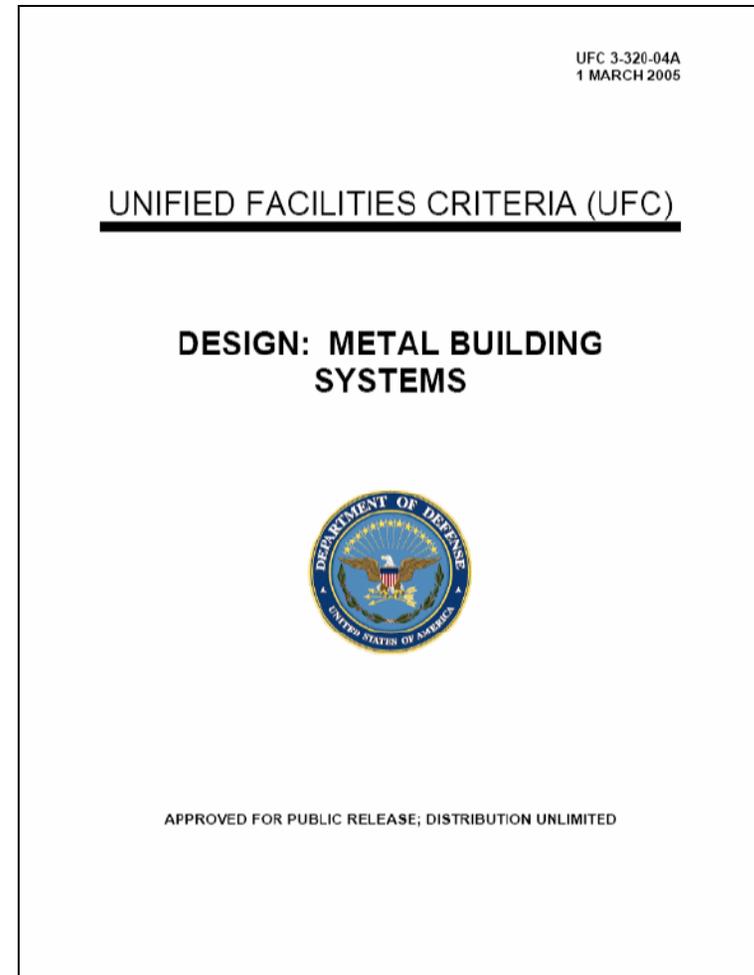
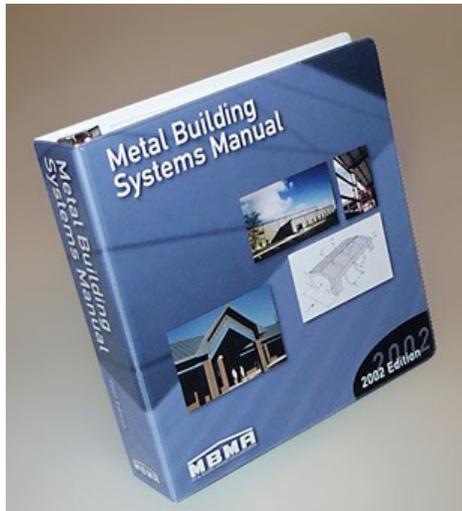
UFC 3-320-03A (TI 809-29)

- Last updated in 1998
- Combination of criteria and commentary
- Can be incorporated into sections of UFC 3-310-02 and an appendix



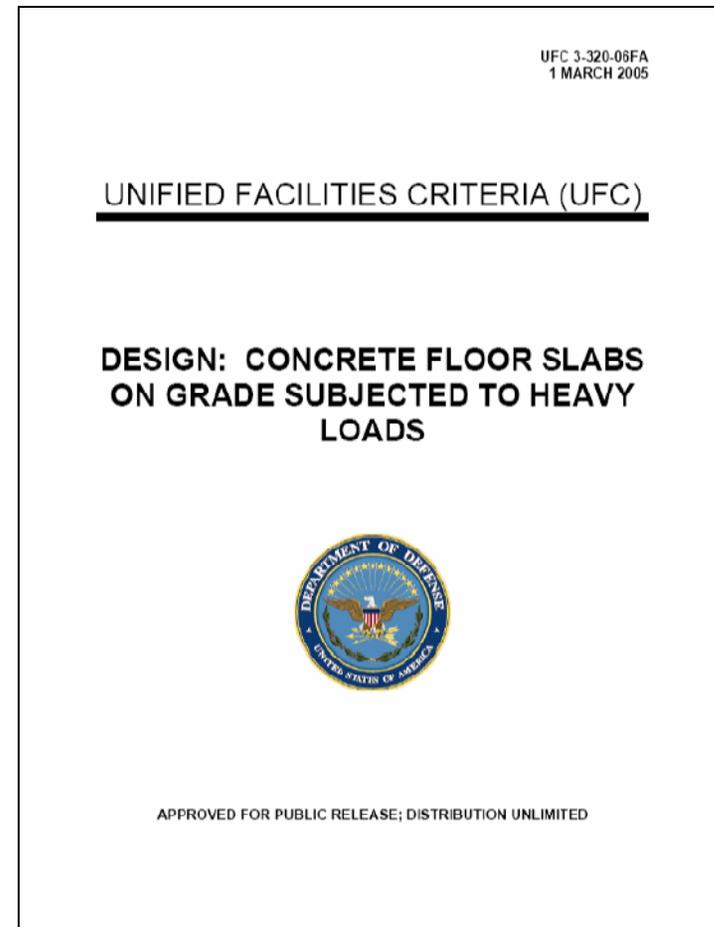
UFC 3-320-04A (TI 809-30)

- MBSM has become a national standard.
- Incorporate exceptions and commentary into sections of UFC 3-310-02



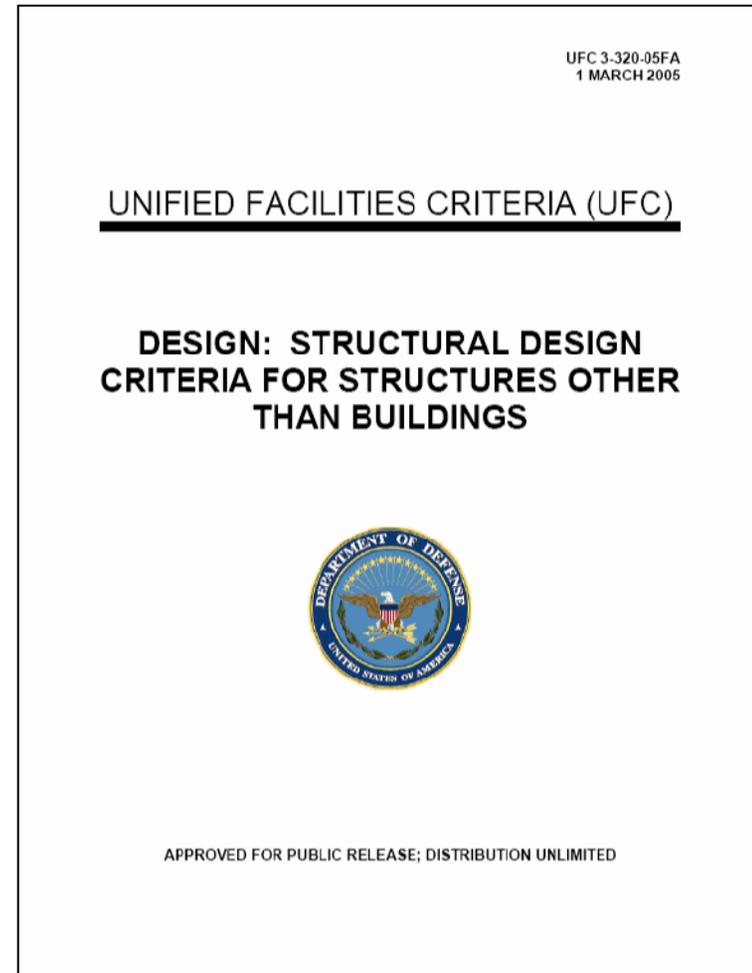
UFC 3-320-06FA (TI 809-12)

- Last updated in 1987!
- Should be incorporated into concrete section of UFC 3-310-02 or an appendix.



UFC 3-320-05FA (TI 809-06)

- Last updated in 1991.
- Primarily references criteria to be used for each type of non-building structure, which are now out of date
- IBC covers non-building structures
- Needs to be updated or eliminated



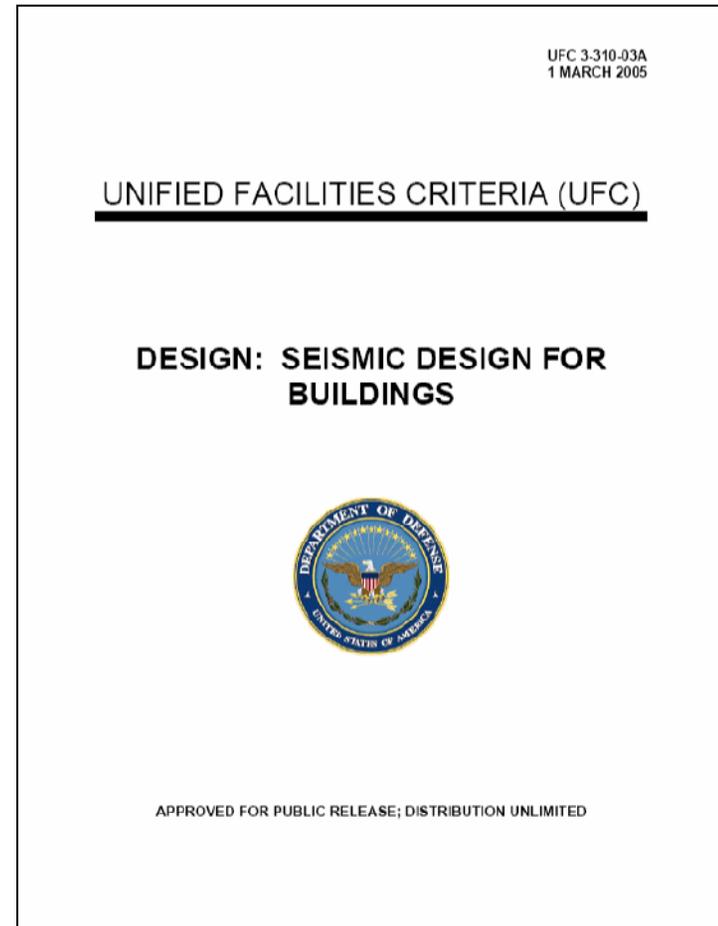
Structural Commentary

UFC		Preparing Activity	Title	Date(s)	Existing Number
Series	Number			Pub	
3-330	00		Structural Commentary		
3-330	01	USACE	Commentary on Snow Loads	XXX	TI 809-52
3-330	02	USACE	Commentary on Roofing Systems	1-May-99	TI 809-53
3-330	03	USACE	Seismic Review Procedures for Existing Military Buildings	30-Sep-99	TI 809-51

- These documents are not criteria. The information should be included as an appendix to UFC 3-310-02 as needed and eliminated

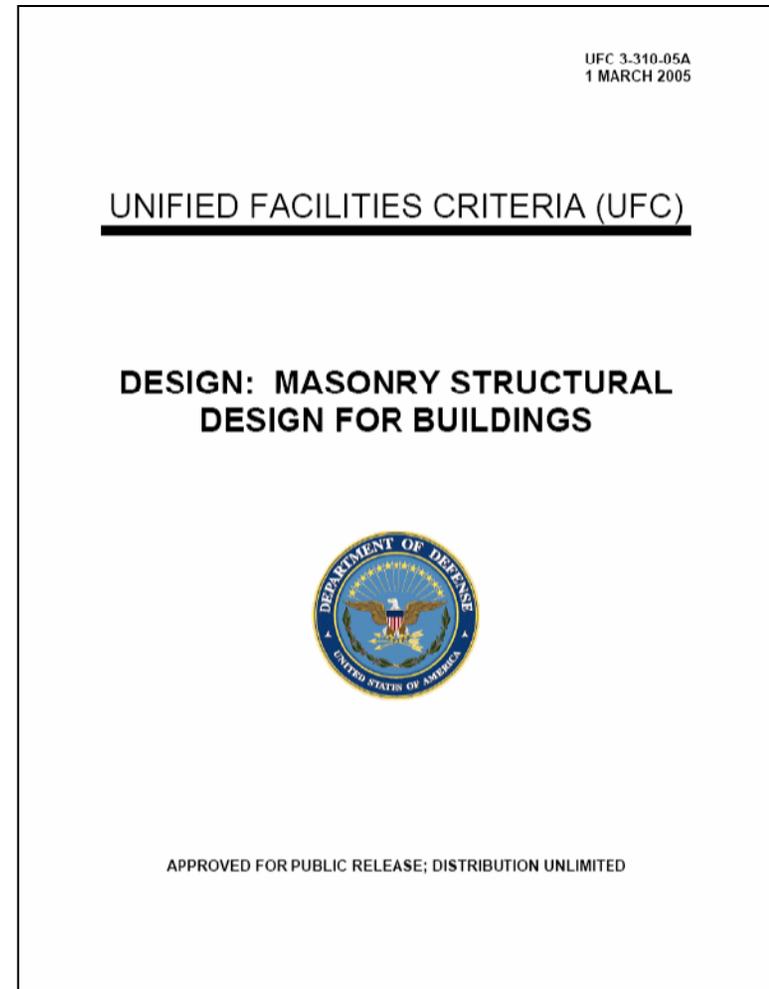
UFC 3-310-03A (TI 809-04)

- This document is currently being updated. Anticipated that new document will be published this CY
- Significant exceptions to IBC
- Lots of commentary



UFC 3-310-05A (TI 5-809-03)

- Currently being updated (publish this CY)
- Major reduction in content
- Exceptions to IBC
- Extensive commentary
- Eventually will be combined with general structural UFC



Current Effort

- Development of UFC 3-310-02 to update TI 5 809-02 and eliminate of TI 5-809-51, TI 5-809-05, TI 5-809-30, with appropriate references and exceptions identified within the document.

Project Schedule

- Preliminary Draft General Structural UFC **30 Sep 2005**
- Pre-final Draft General Structural UFC **1 Jan 2006**
- Tri-service review Meeting **1 Feb 2006**
- Final General Structural UFC **1 Mar 2006**

Summary

- The UFC 1-200-01 establishes the IBC as the DoD design standard as modified by our criteria.
- There are several structural design UFCs which can be reduced/consolidate with UFC 3-310-02
 - Many of the past concerns addressed by DoD in these documents have been addressed in current codes.
- Other criteria considered unique
 - These areas are not appropriately addresses in current codes, therefore these documents should remain stand alone criteria.