

**[APPENDIX A - OWNER'S PROJECT REQUIREMENTS DOCUMENT**

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# **Attachment A – Industry and Military Criteria & Governing Codes**

## ATTACHMENT A

### INDUSTRY AND MILITARY CRITERIA AND GOVERNING CODES

#### PART ONE - Industry Criteria

Applicable design and construction criteria references are listed in the table below. Use criteria from the most current references aligning with the date of issue of this project's solicitation unless noted otherwise. This list is not intended to include all criteria that may apply, or to restrict design and construction to only those references listed. See also Part Two for additional applicable military criteria.

<b>Air Conditioning, Heating, and Refrigeration Institute (AHRI)</b>	
AHRI 430	Performance Rating of Central Station Air Handling Units
AHRI 440	Performance Rating of Room Fan-Coils
AHRI 520	Performance Rating of Positive Displacement Condensing Units
AHRI 1500	Performance Rating of Commercial Space Heating Boilers
<b>Air Movement and Control Association (AMCA)</b>	
AMCA 99-16	Standards Handbook
AMCA 210	Laboratory Methods of Testing Fans for Rating
<b>American Architectural Manufacturers Association (AAMA)</b>	
AAMA 605	Voluntary Specification Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
AAMA 607.1	Voluntary Guide Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum
AAMA 611	Voluntary Specification for Anodized Architectural Aluminum
AAMA 1503	Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections
AAMA 2605	Voluntary Specification for Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels

<b>American Concrete Institute</b>	
ACI MNL-66	Detailing Manual
ACI 315	Details and Detailing of Concrete Reinforcement
ACI 318	Building Code Requirements for Structural Concrete
<b>American Institute of Steel Construction (AISC)</b>	
AISC 325	Steel Construction Manual
<b>American Iron and Steel Institute</b>	
AISI	Light Gage Cold-Formed Steel Design Manuals, the American Iron and Steel Institute
<b>American National Standards Institute (ANSI)</b>	
ANSI C2	National Electrical Safety Code
<b>American Society of Civil Engineers (ASCE)</b>	
ASCE 7	Minimum Design Loads for Buildings and Other Structures
<b>American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)</b>	
ASHRAE TC9.9	Data Center Power Equipment Thermal Guidelines and Best Practices
ASHRAE Datacom Series 1	Thermal Guidelines for Data Processing Environments
ASHRAE Fundamentals	ASHRAE Handbook of Fundamentals
ASHRAE Guideline 0	The Commissioning Process
ASHRAE Guideline 1.1	HVAC&R Technical Requirements for the Commissioning Process
ASHRAE 55	Thermal Environmental Conditions for Human Occupancy
ASHRAE 62.1	Ventilation for Acceptable Indoor Air Quality
ASHRAE 90.1	Energy Standard for Buildings Except Low-Rise Residential Buildings
ASHRAE 183	Peak Cooling and Heating Load Calculations in Buildings

<b>American Water Works Association (AWWA)</b>	
AWWA Standards	Latest edition of applicable standards
<b>Architectural Woodwork Institute (AWI)</b>	
AWI	Architectural Woodwork Standards (AWS), 2nd Edition
<b>Associated Air Balance Council (AABC)</b>	
AABC MN-1	National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems
<b>ASTM International</b>	
ASTM C1060-90(1997)	Standard Practice for Thermo graphic Inspection of Insulation Installations in Envelope Cavities of Frame Buildings
ASTM E 779 -10	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization
ASTM E 283	Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences Across the Specimen
ASTM E 331	Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
ASTM E 2178	Air Barrier Material Standard
ASTM E 2357	Air Barrier Assembly Testing
ASTM E 1186-03	Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems
ASTM E 1258	Standard Test Method for Airflow Calibration of Fan Pressurization Devices
ASTM E1827-96	Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door
ASTM E 2178-11	Standard Test Method for Air Permeance of Building Materials
<b>Builders Hardware Manufacturers Association (BHMA)</b>	
ANSI/BHMA	American National Standards for Builders Hardware

<b>Building Industry Consulting Service International (BICSI)</b>	
TDMM	Telecommunications Distribution Methods Manual, 2014
CO-OSP	Customer-Owned Outside Plant Design Manual
<b>Code of Federal Regulations (CFR)</b>	
29 CFR 1910.1048	Formaldehyde Standard, National Archives and Records Administration (NARA), <a href="http://www.gpoaccess.gov/cfr/index.html">http://www.gpoaccess.gov/cfr/index.html</a>
<b>Electronic Industries Association (EIA) / Telecommunications Industry Association (TIA)</b>	
TIA 568.0-D	Generic Telecommunications Cabling for Customer Premises
TIA 568.1-D	Commercial Building Telecommunications Infrastructure Standard
TIA 568.2-D	Balanced Twisted-Pair Telecommunications Cabling and Component Standards
TIA 568.3-D	Optical Fiber Cabling and Components Standard
TIA 568.4-D	Broadband Coaxial Cabling and Component Standard
TIA 569-D	Telecommunications Pathways and Spaces
TIA-606	Administration Standard for the Commercial Telecommunications Infrastructure
TIA-607-C	Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
TIA 758-B	Customer Owned Outside Plant Telecommunications Infrastructure Standard
<b>Illuminating Engineering Society of North America (IESNA)</b>	
IESNA	Lighting Handbook Illumination Engineering Society of North America Lighting Handbook
<b>Institute of Electrical and Electronics Engineers (IEEE)</b>	
IEEE Standard 100	IEEE Standard Dictionary of Electrical and Electronics Terms
IEEE Standard 141	Recommended Practice for Electric Power Distribution for Industrial Plants (Red Book)
IEEE Standard 142	Recommended Practice for Grounding Industrial and Commercial Power Systems (Green Book)

IEEE Standard 242	Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems (Buff Book)
IEEE Standard 399	Recommended Practice for Power Systems Analysis (Brown Book)
IEEE Standard 493	Recommended Practice for Reliable Industrial and Commercial Power Systems (Gold Book)
<b>International Code Council (ICC)</b>	
IBC	<p>International Building Code</p> <p>Note: All references in the International Building Code to the International Electrical Code shall be considered to be references to NFPA 70.</p> <p>All references in the International Building Code to the National Fuel Gas Code / Liquefied Petroleum Gas Code shall be considered to be references to NFPA 54 and NFPA 58.</p> <p>All references in the International Building Code to the International Fire Code shall be considered to be references to Unified Facilities Criteria (UFC) 3-600-01.</p>
IEBC	International Existing Building Code
IMC	International Mechanical Code (Per UFC 3-410-01)
IPC	International Plumbing Code (Per UFC 3-420-01)
IECC	International Energy Conservation Code (Per UFC 1-200-02)
<b>International Electrical Testing Association Inc (NETA)</b>	
NETA	Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems
<b>National Environmental Balancing Bureau (NEBB)</b>	
NEBB Procedural Standards	Procedural Standards for Testing, Adjusting, and Balancing Environmental Systems
<b>National Fenestration Rating Council (NFRC)</b>	
NFRC 100	Procedure for Determining Fenestration Product U-Factors

NFRC 200	Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence
<b>National Fire Protection Association (NFPA), latest editions</b>	
NFPA 1	Fire Code
NFPA 10	Standard for Portable Fire Extinguishers
NFPA 13	Standard for the Installation of Sprinkler Systems
NFPA 20	Standard for the Installation of Stationary Fire Pumps for Fire Protection
NFPA 24	Standard for the Installation of Private Fire Service Mains and Their Appurtenances
NFPA 54	National Fuel Gas Code
NFPA 70	National Electrical Code
NFPA 70E	Standard for Electrical Safety in the Workplace
NFPA 72	National Fire Alarm Code
NFPA 80	Standard for Fire Doors and Fire Windows
NFPA 90A	Standard for the Installation of Air Conditioning and Ventilating Systems
NFPA 101	Life Safety Code
NFPA 170	Standard for Fire Safety and Emergency Symbols, 2015
NFPA 241	Safeguarding Construction, Alteration and Demolition Operations
NFPA 291	Recommended Practice for Fire Flow Testing
NFPA 409	Standard on Aircraft Hangars
NFPA 780	Standard for the Installation of Lightning Protection Systems
NFPA Suite	National Fire Protection Association, Complete Suite of Documents, latest edition(s)
<b>National Roofing Contractors Association (NRCA)</b>	
NRCA	Roofing and Waterproofing Manual
<b>Occupational Safety and Health Administration (OSHA)</b>	
Title 29, Part 1926	OSHA Construction Industry Standards, Title 29, Code of Federal Regulations, Part 1926, Safety and Health Regulations for Construction
<b>Plumbing and Drainage Institute (PDI)</b>	
PDI WH 201	Water Hammer Arresters Standard



<b>Sheet Metal and Air Conditioning Contractors National Association (SMACNA)</b>	
SMACNA 1793	Architectural Sheet Metal Manual
SMACNA 1780	HVAC Systems Testing, Adjusting and Balancing
SMACNA 1966	HVAC Duct Construction Standards Metal and Flexible
<b>State/Local Regulations</b>	
	Sedimentation and Erosion Control Design Requirements
	Environmental Control Requirements
	Storm Water Management Requirements
<b>Steel Deck Institute (SDI)</b>	
SDI	SDI Diaphragm Design Manual
<b>Steel Door Institute (SDI)</b>	
ANSI A250.8	Standard Steel Doors and Frames
<b>Steel Joist Institute</b>	
SJI	Standard Specifications and Load Tables for Steel Joists and Joist Girders
<b>The Masonry Society (TMS)</b>	
TMS 402	Building Code for Masonry Structures
<b>Underwriters Laboratories (UL)</b>	
UL 96A	Standard for Installation Requirements for Lightning Protection Systems
UL 580	Standard for Tests for Uplift Resistance of Roof Assemblies
<b>Rainfall Frequency Atlas</b>	
US Atlas	Rainfall Frequency Atlas of the United States for Durations from 30 minutes to 24 hours, and return periods from 1 to 100 years

## **PART TWO - Military Criteria and Regional Criteria**

Conform to the following regional and military criteria. Certain design impacts and features due to these criteria are noted in the project narrative for the benefit of the reader. However, all requirements of the referenced criteria are applicable, whether noted or not, unless otherwise specified herein. The version of the documents that is current at the time of issuance of this project's solicitation is applicable unless otherwise noted.

Air Force Corporate Facility Standards (AFCFS), <https://www.wbdg.org/ffc/af-afcec/corporate-facilities-standards-afcfs>

Air Force Instruction 32-1020, Civil Engineering, Planning and Programming Built Infrastructure Projects

Air Force Manual, DAFMAN 32-1084 Facility Requirements

Air Force Policy Memo: Electrification of Installations, Standard Building Operations, flightlines, and Non-Tactical Vehicles (NTV)

AFCEC A-GRAM 17-01 Change to AF New Construction and Major Renovation Certification Requirements

Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Standard for Department of Defense Facilities, United States Access Board, <http://www.access-board.gov/>

Arkansas Department of Energy and Environment, Environmental Quality

Department of Defense Manual (DoDM) 5200.01 Volume 3; DoD Information Security Program: Protection of Classified Information

Ebbing Air National Guard Base Area Development Plan

EM 385-1-1, US Army Corps of Engineers Safety and Health Requirements Manual

Energy Policy (EPACT) Act of 2005

Energy Independence and Security Act (EISA) of 2007

Engineering and Construction Bulletins (ECBs) found at:  
<https://www.wbdg.org/ffc/dod/engineering-and-construction-bulletins-ecb>

Executive Order 13693 – Planning for Federal Sustainability in the Next Decade

Executive Order 13834 – Efficient Federal Operations

Executive Order 14057 – Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability

F16TSSTD-FACILITY-INST-001, f-16 Aircrew Training Device (ATD) Unit Training Device (UTD) Update Facility Design Criteria

HQ USAF Force Protection Guide

ICS 705-1 Physical and Technical Security Standards for Sensitive Compartmented Information Facilities

ICS 705-2 Standards for the Accreditation and Reciprocal Use of Sensitive Compartmented Facilities

Joint Strike Fighter (JSF) Facility Requirements Document (FRD)

Management Plan for the Air Force Capital Construction Program

Mission Critical Facility Engineering Standard (MCFES) 15-01 - Mission Critical Facility Engineering Squad - Facility Electrical and Mechanical Infrastructure Redundancy Requirements – 27 OCT 2015

TM 5-805-4, Technical Manual: Noise and Vibration Control

U.S. Army Corps of Engineers Engineer Manuals available at:  
<http://www.publications.usace.army.mil/USACEPublications/EngineerManuals.aspx>

U.S. Army Corps of Engineers Technical Instructions TI 800-01 available at:  
[http://www.wbdg.org/ccb/ARMYCOE/COETI/ARCHIVES/ti800\\_01.pdf](http://www.wbdg.org/ccb/ARMYCOE/COETI/ARCHIVES/ti800_01.pdf)

U.S. Army Corps of Engineers Engineering and Construction Bulletin (ECB) 2018-17

USACE Contract Administration guidelines set forth at:  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerPamphlets/EP\\_715-1-7.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerPamphlets/EP_715-1-7.pdf)

Whole Building Design Guide, <http://www.wbdg.org>

### **Engineering Technical Letters:**

ECB 2018-11 Control System Cybersecurity Coordination Requirement

ETL 12-15, Light Emitting Diode (LED) Fixture Design and Installation Criteria for Interior and Exterior Lighting Application

ETL 1110-3-447, Engineer of Record and Design Responsibilities

## **Engineering Regulation Letters:**

ER 1110-345-723, Guidelines for the Total Building Commissioning Process

ER 1110-1-8173, Energy Modeling and Life Cycle Cost Analysis

ER 1110-34-1, Engineering and Design Transportation Systems Mandatory Center of Expertise

ER 1110-3-12 Quality Management

**Unified Facilities Criteria (UFC): The latest version of the UFC is applicable, unless noted otherwise, and can be found at <http://dod.wbdg.org>.**

UFC 1-200-01	DoD Building Code
UFC 1-200-02	High Performance and Sustainable Building Requirements
UFC 1-300-01	Criteria Format Standard
UFC 3-101-01	Architecture
UFC 3-110-03	Roofing
UFC 3-120-01	Design: Sign Standards
UFC 3-120-10	Interior Design
UFC 3-190-06	Protective Coatings and Paints
UFC 3-201-01	Civil Engineering
UFC 3-201-02	Landscape Architecture
UFC 3-210-10	Low Impact Development
UFC 3-220-01	Geotechnical Engineering
UFC 3-230-01	Water Storage, Distribution, and Transmission
UFC 3-250-01	Pavement Design for Roads and Parking Areas
UFC 3-301-01	Structural Engineering
UFC 3-401-01	Mechanical Engineering
UFC 3-410-01	HVAC Systems

UFC 3-410-02	Direct Digital Control for HVAC and Other Building Control Systems
UFC 3-420-01	Plumbing Systems
UFC 3-420-02	Compressed Air
UFC 3-450-01	Noise and Vibration Control
UFC 3-501-01	Electrical Engineering
UFC 3-520-01	Interior Electrical Systems
UFC 3-530-01	Interior and Exterior Lighting and Controls
UFC 3-550-01	Exterior Electrical Power Distribution
UFC 3-560-01	Electrical Safety O&M
UFC 3-575-01	Lightning and Static Electricity Protection Systems
UFC 3-580-01	Telecommunications Building Cabling Systems Planning and Design
UFC 3-600-01	Fire Protection Engineering for Facilities
UFC 3-730-01	Programming Cost Estimates for Military Construction
UFC 4-010-01	DoD Minimum Antiterrorism Standards for Buildings
UFC 4-010-05	SCIF/SAPF Planning, Design, and Construction
UFC 4-010-16	Cybersecurity of Facility-Related Control Systems
UFC 4-021-01	Design and O&M Mass Notification Systems
UFC 4-021-02	Electronic Security Systems
UFC 4-026-01	Design to Resist Forced Entry
UFC 4-211-01	Aircraft Maintenance Hangars
UFC 4-211-02	Aircraft Corrosion Control and Paint Facilities
UFC 4-440-01	Warehouses and Storage Facilities