Maine Army National Guard (MEARNG)

Document to Support A&E Fees Above the Maine Bureau of General Services **BGS Policy**

Determining Design Fees for Architectural/Engineering Agreements

Commercial vs Army National Guard Design Requirements

MEARNG and National Guard Bureau (NGB) A&E fee authorizations are higher than BGS policy recommends. Design of facilities according to the DG 415-5 Army National Guard General Facilities Information Design Guide require all normal commercial codes and standards. Because MEARNG builds and maintains military facilities designs must also comply with Presidential Executive Orders as well as DOD, Army, National Guard Bureau, and Army National Guard design requirements which exceed design requirements for normal State or commercial facilities.

NGB requires that A&E fees are not to exceed 3% for Type A services, 10% for Type B services, and 3% for Type C services. Type B services limit was increased in United States Code, Title 10, Subtitle B, Part IV, Chapter 763:

> **§ 7540.** Architectural and engineering services
>
> **(a)** Whenever he considers that it is advantageous to the national defense and that existing facilities of the Department of the Army are inadequate, the Secretary of the Army may, by contract or otherwise, employ the architectural or engineering services of any person outside that Department for producing and delivering designs, plans, drawings, and specifications needed for any public works or utilities project of the Department.
>
> **(b)** The fee for any service under this section may not be more than 10 percent of the estimated cost, as determined by the Secretary, of the project to which it applies.

These requirements are defined by contract between the NGB and the State of Maine in Master Cooperative Agreements (MCA) and Military Construction Cooperative Agreements (MCCA) signed by the G9 at NGB, the United States Property and Fiscal Officer (USPFO), The Adjutant General (Commissioner of the Maine Department of Defense, Veterans, and Emergency Management) and Assistant Attorney General of the State of Maine. These authorizations set MEARNG budgets for Federal funds to be reimbursed to the State of Maine for A&E contracts.

Some examples where MEARNG designs exceed commercial requirements include:

1) Anti-Terrorism Force Protection (ATFP) specific designs which include perimeter protection, site access security, road design considerations, door and window blast considerations, building access security, HVAC, electrical, BACS, etc.

2) Information Technology and Communication (IT/Comm) specific designs which include environmental, physical, and equipment requirements to assure safe and secure data and phone communications.
3) Environmental requirements to Federal regulations, Executive Orders, and goals are more stringent and frequently required sooner than local regulations. Regarding PFAS, federal guidance required us to get ahead of the curve before any mandated state actions took place.
4) Sustainment requirements to Federal regulations, Executive Orders, and goals including requirements for energy and materials reduction, reuse, and recycling. NGB environmental has a rigorous recycling mandate that requires monitoring and reporting by both MILCON and SRM Type C (SIOH) services to get this data from the general contractor which add an extra expense to their projects.
5) Building Automation and Control Systems (BACS) specific designs to meet Executive Orders and military requirements for energy and water usage and conservation.
6) ARNG specific facilities such as military vehicle maintenance, aviation maintenance, and "readiness" centers, formerly called armories, all of which are subject to design requirements that exceed normal commercial construction.
7) ARNG specific facilities store weapons, ammunition, and equipment (sensitive items) that require significantly more security than a normal state facility.
8) Government reviews of A&E designs at 10%, 30%, 60%, 90% and Issued for Bid phase of designs in accordance with the format and content required in NG PAM 415-5, ARMY NATIONAL GUARD MILITARY CONSTRUCTION PROGRAM EXECUTION guide. See the approved "checklist' in Chapter 8 at the end of this document. These are reviews required to be performed by State employees for all Sustainment, Restoration, and Modernization (SRM) projects and the Federal NGB personnel for all MILCON and Unspecified Minor MILCON (UMMC) Projects.
9) Cost estimates (Opinions of Probable Cost) at each phase of design review to assure that cost for "Base Bids" do not exceed 85% of the authorized or appropriated cost of project construction.
10) Adherence to Unified Facility Criteria (UFC) and Unified Facility Guides Specifications (UFGS) to assure that military facility requirements are met and that compatibility is maintained between facilities of all branches of the DOD.

DG 415-5 Army National Guard General Facilities Information Design Guide

This General Facilities Information Design Guide (DG 415-5) was published by the National Guard Bureau, Army Installations Division (ARNG-ILI). DG 415-5 applies to all projects for new construction (including additions) as well as alterations to and rehabilitation and conversion of existing facilities. It is intended to assist the States, Possessions, design agencies, and design architect-engineer in gaining an understanding of the general functions and environmental considerations to address in the design and construction documents for the Army National Guard (ARNG) facilities that qualify for support from Federal funds. This design guide does not contain criteria but refers readers to sources of criteria in other publications that relate directly to the specific technical design requirements.

DG 415-5 includes normal commercial and military design requirements however the following is a summary list of requirements that exceed normal commercial design requirements.

CHAPTER 1

GENERAL INFORMATION

UFC 3-600-01 Fire Protection Engineering for Facilities.

DA PAM 40-503, Industrial Hygiene Program

UFC 3-400-01, Design: Energy Conservation

The Energy Policy Act of 2005 (EPAct-05) amended in 2007 published guidelines to design/construct buildings 30% more efficient than ANSI/ASHRAE/IESNA Standard 90.1-2007

Site selection and Federal support shall conform to NGR 415-5, Chapter 4

The Site Survey Report, to be prepared in accordance with NGR 415-5, must include the results of the investigation of the selected site. The CFMO and NGB-ARI use the completed Soil Bearing Capacity Declaration (NG PAM 415-5, Appendix G) to gauge the adequacy of the site and thus determine whether to grant Federal funds for construction of the facility at that particular location.

All Bid Formats are located in NG PAM 415-5, Appendix L

1-3.22 Commissioning Buildings and Systems

Total building (enhanced) commissioning is recommended for all ARNG MILCON projects for new construction and major renovation. Fundamental Commissioning of Building Energy Systems is a prerequisite for LEED-NC and Enhanced Commissioning is a one (1) point credit.

The total cost allowed for this activity will be 1% of the Primary Facility Cost. A line item cost of 0.6% for the construction phase will be indicated on the DD Form 1390/91 Funding Document. The design phase allowance of 0.4% will be funded with P&D funds. This cost allowance includes the services of an Independent Commissioning Agent. The CFMO should provide the design Architect-Engineer and the Commissioning Agent a copy of the ARNG COMMISSIONING RFP/SOW prior to design startup.

Chapter 2 - ANTITERRORISM/FORCE PROTECTION

2-1 ***GENERAL INFORMATION***

Any building or portions of buildings routinely occupied by 11 or more DoD personnel with a population density greater than one person per 430 ft2 requires the minimum antiterrorism/force protection measures.

(DoD) Minimum Antiterrorist Standards for Buildings (UFC 4-010-01)

UFC 4-010-01 for Inhabited Buildings

DA PAM 190-51, DOD Security Engineering Publications UFC 4-020-01FA, UFC 4-020-02FA, UF 4-020-03FA and UF 4-020-04FA.

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

UFC 4-010-02 Minimum Standoff Distances for Buildings (FOUO), and

UFC 4-023-03 Progressive Collapse

UFC 4-021-01 Mass Notification Systems

CHAPTER 3

SUSTAINABLE DESIGN AND DEVELOPMENT

Sustainable Design and Development (SD&D) SD&D requires a multi-disciplinary approach that incorporates a wide range of strategies and objectives set in *Executive Order,(EO)*

The design Architect-Engineer must use the Green Building Rating System LEED-NC™ 3, developed by the U.S. Green Building Council (USGBC).

The sustainable design and development should adhere to the efficient energy management goals and objectives stated in Executive Order (EO) 13423.

The Energy Independence and Security Act of 2007 (EISA 2007)

UFC 1-900-01, Selection of methods for the Reduction, Reuse, and Recycling of Demolition Waste and Unified Facilities Guide Specification Sections,

UFGS-01355, Environmental Protection; UFGS-01572, Construction and Demolition Waste Management;

UFGS-02220, Demolition.

All facility equipment, materials, and operating systems should be based on the lowest life cycle cost considerations, AR 11-27, the State's energy code, UFC 3-400-01 Energy Conservation and the latest referenced energy and environmental industry standards.

UFC 3-440-03N, Passive Solar Buildings for design guidance.

A Utility Monitoring and Control System (UMCS) per UFGS-13801)

Energy Policy Act of 2005 and DOE/EE -0312 Guidance for Electric Metering in Federal Building

CHAPTER 4

COMMON FUNCTIONAL SITE DESIGN GUIDELINES

4-1 SITE ANALYSIS EVALUATION

4-1.1 Area Suitable for Building Construction

4-1.2 Compliance with Threat Assessment Criteria

4-2 STORMWATER POLLUTION PREVENTION

4-3 REQUIRED PAVED AREAS

4-4 **FUEL STORAGE AND DISPENSING SYSTEM**

Any fuel storage or dispensing facility must be designed in accordance with guidance in MIL-HDBK-1022A

Fuel-dispensing units for the direct fueling of ground vehicles should be in accordance with standard MIL-848-2

In accordance with *Army Regulation (AR) 70-12 Fuels and Lubricants Standardization Policy for Equipment Design, Operation, and Logistic Suppor*t, all plans for new construction, modification, or upgrading of petroleum facilities containing fuel purchased with federal funds must be submitted prior to bidding for review and technical assistance to:

U.S. ARMY PETROLEUM CENTER (APC)

Facilities and Operations Division

8725 John J. Kingman Road, Stop 6421

Fort Belvoir, VA 22060-6241

4-5 **CONTROLLED WASTE-HANDLING FACILITY**

4-6 **COVERED (ENCLOSED), UNHEATED VEHICLE AND PARTS STORAGE**

4-7 **COVERED STORAGE AREA**

4-8 **WASH PLATFORMS FOR VEHICLES/EQUIPMENT**

4-9 **BULK POL STORAGE**

4-10 **FLAMMABLE MATERIALS STORAGE**

CHAPTER 5

COMMON FUNCTIONAL PLANNING

AND BUILDING DESIGN GUIDELINES

5-1 **FUNCTIONAL PLANNING RELATIONSHIPS**

All functional site and building design components should respect fundamental planning relationships that optimize efficient operations at Army National Guard facilities.

Each facility-type design guide, used in combination with this document, includes specific information related to the topics discussed in the following paragraphs.

CHAPTER 6 COMMON ARCHITECTURE AND ENGINEERING

TECHNICAL GUIDELINES

SECTION 1 CIVIL, SITE, AND LANDSCAPE DESIGN

DIVISION 01 GENERAL REQUIREMENTS

Environmental Protection - UFGS 01 57 20.00 10:

Storm Water Pollution Prevention Measures - UFGS 01 57 23:

Construction and Demolition Waste Management - UFGS 01 74 19:

Recycle/Recovered Materials - UFGS 01 62 35:

Demolition - UFGS 02 41 00:

Removal and Salvage of Historic Building Material - UFGS 02 42 91:

Clearing and Grubbing - UFGS 31 11 00:

Earthwork - UFGS 31 00 00:

Excavation and Backfill - UFGS 31 23 00:

Subsurface Drilling, Sampling, and Testing - UFGS 02 32 00:

Soil Surface Erosion Control - UFG 31 32 11:

Potable Water Distribution - UFGS 33 11 00

UFC 3-600-01 Fire Protection Engineering for Facilities

Sanitary Sewage Systems - UFGS 33 30 00

Natural Gas Distribution - UFGS 33 51 15

Stormwater Retention Basin Design UFC 3-210-10 Low Impact Development Manual.

Privately Owned Vehicle Parking - UFGS 01 50 00

Additional Paved Area Requirements - UFGS 32 13 13.06

Bituminous Concrete Pavement - UFGS 32 10 00

Resin Modified Pavement™ Surfacing Material - UFGS 32 12 18

Access Roads and Entrance Roads - UFGS 32 13 13

Pavement Standards - UFGS 32 10 00

02751 Military Vehicle Parking Pavement Requirements NG PAM 415-12

SECTION 2 EXTERIOR IMPROVEMENTS

Concrete Sidewalks (Porous Asphalt) - UFGS 32 16 13

UFC 3-210-10 for permeable pavement design

High Security Chain Link Fences and Gates - UFGS 32 31 13.53

Irrigation Systems - UFGS 32 84 24

Fine Grading and Seeding - UFGS 32 92 19

Exterior Plants - UFGS 32 93 00

Landscaping - UFGS 32 05 33

SECTION 3 STRUCTURAL ENGINEERING DESIGN

UFC 3-310-04 Seismic Design for Buildings

SECTION 4 ARCHITECTURAL DESIGNS

GENERAL INFORMATION - WHERE DESCRIBED IN THESE DESIGN GUIDES AND REFERENCE PUBLICATIONS, THE STANDARDS FOR MATERIAL QUALITY AND CONSTRUCTION ARE THE MINIMUM REQUIRED TO SUPPORT FEDERAL FUNDING FOR A PROJECT.

Parapet Walls - UFGS 04 20 00

Exterior Walls - UFGS 04 20 00

DIVISION 05 METALS

Miscellaneous Metals - UFGS 05 50 13

DIVISION 06 WOODS AND PLASTICS

Wood Roof Support - UFGS 06 10 00

DIVISION 07 THERMAL AND MOISTURE PROTECTION

Slab Perimeter Insulation - UFGS 07 21 13

Mineral Fiber Blanket Insulation - UFGS 07 21 16

Roofing Systems - UFGS 07 22 00

Bituminous Roofing - UFGS 07 52 00

Elastomeric Membrane Roofing - UF-07530

Sheet Metal Roofing - UFGS 07 61 14.00 20

DIVISION 08 OPENINGS

Exterior Doors - UFGS 08 11 13

Wood Interior Doors - UFGS 08 11 00

Logistics Maintenance/ Aviation Hangar Doors Steel sliding of vertical lift fabric doors may be used. - UFGS 08 34 16.10/20

Skylights and Clerestories - UFGS 08 62 00

Door Hardware - UFGS 08 71 00

Glazing Types (Blast Resistant Tempered) - UFGS 08 56 53

DIVISION 09 FINISHES

Acoustical Ceilings - UFGS 09 51 00 Resilient Flooring - UFGS 09 65 00 Carpet - UFGS 09 68 00

Exterior Painting and Coatings - UFGS 09 90 00

DIVISION 10 SPECIALTIES

Bulletin and Tack Boards - UFGS 10 10 00

Marker Boards - UFGS 10 10 00

Exterior Signage (Free-standing or Building Mounted) - UFGS 10 14 01

Interior Signage - UFGS 10 14 02

Toilet Partitions - UFGS 10 21 13

Toilet Accessories - UFGS 10 28 13

Metal Lockers - UFGS 10 51 13

DIVISION 11 EQUIPMENT

Food Service Equipment Schedule

Refrigerated and Frozen Food Storage Equipment - UFGS 11 41 11

Food Preparation Equipment - UFGS 11 42 00

Food Cooking Equipment - UFGS 11 44 00

Food Dispensing Equipment - UFGS 11 46 00

Ice Machines - UFGS 11 47 00

Cleaning and Disposal Equipment - UFGS 11 48 00

Vaults (Armory) AR 190-11 - Doors and door frames. The vault door threshold must be level with the adjoining floor to allow easy movement of pallet jacks and other wheeled items. The door will be GSA approved Class V armory door per GSA Fed Spec AA–D–600D. Door frames will be per Fed Spec AA–D–600D.

Loading Docks - UFGS 11 31 10

DIVISION 12 FURNISHINGS

interior design guidance reference UFC 3-120-10

UFC 4-610-10 Administration Facilities

Window Blinds - UFGS 12 21 00

Furniture Systems (Workstations) - UFGS 12 50 00

DIVISION 13 SPECIAL CONSTRUCTION

A. Intrusion Detection System (IDS) General Information

The Electronic Security Program Office (ARNG-ILI-F) has selected three (3) IDS for protection of Federal assets and arms, ammunitions, and explosives (Ademco Vista 128 Panel; FBI XL4 Panel; IST/EUROPLEX 2064NG Panel).

B Pre-Engineered Structures - UFGS 13 34 19

C Sensitive Compartmented Information Facility (SCIF).

SECTION 5 MECHANICAL AND PLUMBING SYSTEMS DESIGN

DIVISION 14 CONVEYING SYSTEMS

DIVISION 21: FIRE SUPPRESSION

Fire Protection Systems - UFGS 21 13 00

UFC 3-600-01 Fire Protection Engineering for Facilities

DIVISION 22 PLUMBING SYSTEMS

Piping Insulation - UFGS 22 07 19

Piping Systems Support - UFGS 22 05-48

Piping Specialties - UFGS 22 00 00

Domestic Water Piping - UFGS 22 00 00

Sanitary Waste and Vent Piping - UFGS 22 00 00

Storm Drainage Piping - UFGS 22 00 00

Fuel Piping - UFGS 22 00 00

Plumbing Fixtures - UFGS 22 00 00

Lavatories - UFGS 22 00 00

Showers - UFGS 22 00 00

Mop Sink - UFGS 22 00 00

Water Coolers UFGS 22 00 00

Eye Wash and Deluge Shower - UFGS 22 00 00

Exterior Wall Hydrants - UFGS 22 00 00

Hot Water Heaters - UFGS 22 00 00

DIVISION 23 HEATING, VENTILATING, AIR CONDITIONING

Seismic Bracing - UFGS 23 05 48

UFC 3-310-03A, Seismic Design for Buildings and ASHRAE Application Handbook.

Ductwork Insulation - UFGS 23 07 00

Heating Systems - UFGS 23 54 19

Heat Pumps Water/Ground Source - UFGS 23 81 47

Infrared Radiant Heaters - UFGS 23 54 16

Pollution Control - UFGS 23 51 43

Boilers Heating Systems - UFGS 23 52 00

Mechanical/Industrial Ventilation Systems - UFGS 23 35 19

System Sizing HVAC

UFC-3-400-02 Design Engineering Weather Data

Desiccant Dehumidification Equipment - UFGS 23 84 16

Energy Recovery Systems - UFGS 23 72 00

Filters-HVAC Systems - UFGS 23 41 13

System Controls - Direct Digital - UFGS 23 09 23

DIVISION 25 INTEGRATED AUTOMATION

Energy Management & Control System - UFGS 2510 10

DIVISION 26 ELECTRICAL

UFC 3-520-01

Wiring – UFGS 26 05 19

Emergency Generators/Automatic Transfer Switch - UFGS 26 32 15/26 28 21

Interior Distribution - UFGS 26 20 00

Lightning and Surge Protection UFGS 26 41 00

Power Panels - UFGS 26 24 16

Interior Lighting Systems - UFGS 26 51 00

Interior Fixture Types - UFGS 26 51 00

Interior Lighting Intensity Level - UFGS 26 51 00

Exterior Lighting Systems - UFGS 26 56 00

Exterior Fixture Types - U FGS 26 56 00

Exterior Lighting Intensity Level - UFGS 26 56 00

Explosion-Proof Fixtures

Emergency Egress Lighting - UFGS 26 52 00.00 40

Exit Signs - UFGS 26 53 00

DIVISION 27 COMMUNICATIONS

Communication Systems

Guidance from U S Army Information Systems Engineering Command, Technical Guide for Installation Information Infrastructure Architecture Technical Guide for 13A, UFC 3-580-01 Telecommunications Building Cabling Systems Planning

Fiber Optic Cable - UFGS 27 21 10

Public Address System - FGS 27 51 16

Carbon Monoxide Detectors - UFGS 28 31 49

Fire Alarm/Detection and Mass Notification System -UFGS 28 31 76

UFC 3-600-01

SECTION 7 UTILITIES FUEL STORAGE

DIVISION 33 UTILITIES

Above-Ground Storage Tanks - UFGS 33 56 10

Underground Storage Tanks - UFGS 33 56 10

Fuel Storage Tanks (Compresses Gases) - UFGS 33 56 10

SECTION 8 MATERIAL HANDLING

DIVISION 41 MATERIAL PROCESSING AND HANDLING EQUIPMENT

Top-Running Overhead Cranes - UFGS 41 22 13.14

(Reference DG-415-2 and DG 415-3 requirements)

CHAPTER 7

SUPPLEMENTAL SUBMISSION REQUIREMENTS

CHAPTER 8

FUNCTIONAL QUALITY ASSURANCE

8-1 MILESTONE COMPLIANCE ASSURANCE

To verify that all functional and performance goals are being accomplished in the project development process, the design review directives checklists in Appendix C, TABLE 6-1 should be used in the review exercise performed at the 10 percent, 35 percent, and 95 percent design and

documentation submission milestones for each facility type (refer to the facility-type design guide for additional, unique design review directives).

NG PAM 415-5 Checklist