BY ORDER OF THE SECRETARY OF THE AIR FORCE

AIR FORCE INSTRUCTION 32-1023

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CIVIL ENGINEERING

DESIGNING AND CONSTRUCTING MILITARY CONSTRUCTION PROJECTS

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This instruction provides general design criteria and standards; guidance on selecting Architect-Engineering firms; and information on design and construction management. This instruction also implements Air Force Policy Directive (AFPD) 32-10, *Installations and Facilities*, Military Standard (MIL-STD) 3007G, Unified Facilities Criteria, Facilities Criteria and Unified Facilities Guide Specifications. This instruction also provides guidance that governs Air Force Military Construction (MILCON) projects. This instruction applies to all civilian employees and uniformed members of the Regular Air Force, Air Force Reserve (AFR), and Air National Guard (ANG). It applies to all civilian employees and uniformed members of the Regular Air Force, Air Force Reserve, and Air National Guard (ANG). Ensure all Air Force records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed of in accordance with the Air Force Records Disposition Schedule located in the Records Management System. Refer recommended changes and questions about this publication to the Office of Primary Responsibility using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command. This publication may be supplemented at any level, but all supplements must be routed to the Office of Primary Responsibility listed above for coordination prior to certification and approval. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See Department of the Air Force Instruction 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately,

to the requestor's commander for non-tiered compliance items. The use of the name or mark of any specific manufacturer, commercial product, non-Federal entity commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

This document has been substantially revised and needs to be completely reviewed. This document has been restructured to comply with DAFI 33-360 specified format for AFIs; several chapters were re-numbered; content was moved from **chapter 1** to new **chapters 2 and 3**. References were changed from rescinded programming AFIs to a consolidated instruction, AFI 32-1020, *Planning and Programming Built Infrastructure Projects*. Use of MILCON funds for site cleanup was clarified in **Chapter 5**. **Chapter 6** was added to identify key supporting documents for Construction-In-Progress. References in **Attachment 1** were verified and corrected.

Chapter 1

OVERVIEW

1.1. Scope. This chapter defines the types of facilities to which this AFI applies, identifies the roles and responsibilities of the primary stakeholders in the design and construction of Air Force MILCON projects located on Air Force installations and Joint Bases, and outlines deviation procedures from the *Program Management Plan for Air Force MILCON Execution*. The roles and delegation of authorities in the program management plan may be reviewed and updated as needed. A copy of the *Program Management Plan for Air Force MILCON Execution* is available at the Whole Building Design Guide (WBDG) website (**https://www.wbdg.org**).

1.2. Applicability. This instruction contains criteria for design and construction of real property supporting the Air Force mission worldwide. This AFI applies to all military construction projects funded by appropriations made to the Air Force, Air Force Reserve and Air National Guard. This includes appropriations for MILCON; Research, Development, Testing and Evaluation (RDT&E); and any other Air Force appropriations used to fund design and/or construction.

1.2.1. Medical facilities. Design and construction procedures for medical facility projects are covered in Department of Defense Instruction (DoDI) 6015.17, *Military Health System (MHS) Facility Portfolio Management, with Change 1;* AFI 32-1020, *Planning and Programming Built Infrastructure Projects; Unified Facilities Criteria (UFC) 1-200-01, DoD Building Code, with Change 1* ; UFC 1-200-02, *High Performance and Sustainable Building Requirements, with Change 4;* and UFC 4-510-01, *Design: Military Medical Facilities,*.

1.2.2. Defense Commissary Agency Facilities. Refer to DoDI 7700.20, *Commissary Surcharge, Non-appropriated Fund (NAF), and Privately Financed Construction Reporting Procedures,* and DoDI 7700.18, *Commissary Surcharge, Non-appropriated Fund (NAF) and Privately Financed Construction Reporting Procedures*, for additional guidance.

1.2.3. Non-appropriated Funds (NAF) facilities. Refer to AFI 34-205, *Services NAF Projects,* and AFI 32-1020, for additional guidance. Coordinate all actions related to Air Force NAF- funded facilities with the Air Force Services Agency (AFSVA).

1.2.4. Army and Air Force Exchange Service Facilities. These facilities are now known as the “Exchange. Refer to AFI 32-1020, for additional guidance.

1.2.5. Other Tenant Organization Facilities. For facilities for other tenant organizations, including military departments and agencies (e.g., Department of Defense Education Activity and Defense Logistics Agency) and private organizations (e.g., Fisher House, museums, banks, credit unions, thrift shops), refer to AFI 32-1020, for additional guidance.

1.2.6. Air Force Military Family Housing. Refer to AFI 32-6000, *Housing Management*, for additional design and construction guidance.

1.2.7. Reserve Components. The Chiefs of the NGB and Air Force Reserve are responsible for developing supplementary policies, instruction, and guidance unique to their respective construction programs and overseeing management of those programs. The Office of the Air

National Guard Civil Engineer (NGB/A4) is responsible for ANG construction under Title 10 United States Code (USC) Chapter 1803, *Facilities for Reserve Components*. The Chief of the Air Force Reserve (AF/RE) is responsible for Air Force Reserve construction under 10 USC § 9038, *Office of Air Force Reserve: appointment of Chief* and refer to Air National Guard Instruction 32-1023, *Criteria and Standards for Air National Guard Design and Construction*, or Air Force Reserve Command Handbook 32-1001, *Standard Facility Requirements*, for applicable guidance.

1.2.8. Department of Defense (DoD) Components or Federal Agencies. See **Section 7C**, *Inter-service Relationships*, in AFMAN 65-605 Volume 1, *Budget Guidance and Procedures*, for situations involving other DoD components or federal agencies.

1.2.9. Reserve Component Facilities Programs and Unit Stationing. Refer to DoDI 1225.8 *Reserve Component (RC) Facilities Programs and Unit Stationing*, for projects involving the Air National Guard and Air Force Reserve.

Chapter 2

ROLES AND RESPONSIBILITIES.

2.1. Office of the Secretary of the Air Force (SAF). SAF provides guidance for the Air Force construction program through the Deputy Assistant Secretary for Environment, Safety, and Infrastructure (SAF/IEE).

2.2. Deputy Assistant Secretary of the Air Force for Environment, Safety, and Infrastructure (SAF/IEE). SAF/IEE provides facility design and construction policy and oversight for the Air Force. SAF/IEE coordinates, approves and transmits notifications to Congress.

2.3. Secretary of the Air Force/Financial Management Budget Investment and Construction (SAF/FMBIC). SAF/FMBIC provides Congressional, Office of Undersecretary of Defense Comptroller (OUSD-C) and Program Management support. SAF/FMBIC requests OUSD-C to release appropriated funds upon the appropriation bill's enactment. They are responsible for issuing funding authorizations (formal administrative subdivisions of appropriated funds) to Major Command (MAJCOM)/Air Force Installation and Mission Support Center (AFIMSC) or DoD construction agents responsible for construction. They also have the role of reviewing and validating Spend Plans from the Director of Civil Engineers (AF/A4C) when it is a congressional requirement of the appropriation bill, coordinated through the Budget Liaison team (SAF/FMBL), in order to receive funding from OUSD-C. In addition, SAF/FMBIC reviews and validates all Active MILCON prior-approval reprogramming requests and coordinates timely submission to OUSD-C through the Policy and Fiscal Control team (SAF/FMBP&FC).

2.4. The Director of Civil Engineers (AF/A4C). AF/A4C facilitates policy development, distribution, interpretation, and oversight to ensure compliance and progress toward goals. The Deputy Director of Civil Engineers (AF/A4C-2) serves as the approval authority for UFC deviations. The Facilities Division (AF/A4CF) is the lead in AF/A4C for MILCON program oversight and resource advocacy. AF/A4CF submits reports; cost variations; re-programming requests; scope changes; and other notifications to Congress through SAF/IEE based on justifications from the requiring MAJCOM or Air Force Civil Engineer Center (AFCEC).

2.5. Air Force Installation and Mission Support Center (AFIMSC). AFIMSC facilitates policy development for programming, budgeting, and funding the execution of Installation and Mission Support requirements, to include: gathering Program Objective Memorandum inputs; validating requirements; and advocating to ensure continued installation operational capacity and capability for the enterprise. AFIMSC advocates for Integrated Installation Planning-related requirements (e.g. District Plans, Area Development Plans, etc.). AFIMSC staffs AFCEC's initiated planning products for approval by MAJCOMs, as required.

2.6. AFIMSC Programs Financial Management Branch (AFIMSC/RMAS). AFIMSC/RMAS provides financial management oversight of Active Air Force MILCON appropriations, including Military Family Housing. AFIMSC/RMAS coordinates with the AFCEC Facility Engineering Directorate (AFCEC/CF) and AFIMSC Detachments to identify fund sources to be used for sub-allotments to finance major and minor MILCON projects financed by MILCON appropriations. AFIMSC/RMAS coordinates with

SAF/FMBIC to issue Operating Budget Authority Documents and Funding Authorization Documents to the DoD construction agent for design and construction of major and minor MILCON. AFIMSC/RMAS provides oversight and reporting of Air Force MILCON appropriations, allotments, sub-allotments, commitments, obligations and outlays. AFIMSC/RMAS participates in Red Zone meetings to discuss the financial closeout of projects.

2.7. Air Force Civil Engineer Center Director (AFCEC/CL). The AFCEC Director and Deputy Director ensure facilities designed and constructed using military construction appropriations are compliant with applicable Unified Facility Criteria. The AFCEC Director and Deputy Director also manage the Unified Facility Criteria program for AF/A4C.

2.8. AFCEC Facility Engineering Directorate (AFCEC/CF). AFCEC/CF manages the execution of the MILCON portfolio, both programmatically and by project. AFCEC/CF tracks MILCON expenditures, requirements, and trends (like bid savings, shortfalls or excesses), in the interest of ensuring a financially healthy program and advocating for resources or adjustments when necessary.

2.8.1. AFCEC/CF manages the MILCON Planning and Design accounts to maximize award of projects in the year of appropriation.

2.8.2. AFCEC/CF provides technical assistance and support to installations, MAJCOM, Field Operating Agencies and AF/A4C.

2.8.3. AFCEC/CF interprets and applies relevant UFCs and industry standards, ensuring facility compliance with applicable Air Force and DoD policies and directives. AFCEC/CF also identifies emergent design requirements not addressed by UFCs or local, state, and federal standards, and advocates for enhanced design criteria when necessary (for example, in the interest of designing facilities more resilient to climate change or severe weather, if UFCs and applicable codes have not kept pace with regional climate and weather trends).

2.8.4. AFCEC/CF is the subject matter expert and the technical authority in the following subject areas: architecture, construction criteria, project management, sustainable design and development.

2.8.5. An AFCEC/CF representative is the Air Force member on the UFC Coordinating Panel and interfaces with the other Services to resolve issues and process UFCs.

2.8.6. AFCEC/CF evaluates scope, cost, and schedule variations and submits recommended actions for AF/A4CF, SAF/IEE, or Congressional approval.

2.8.7. AFCEC/CF authorizes award of the primary construction contract using a field design instructions to the DoD construction agent.

2.9. AFCEC Operations Directorate (AFCEC/CO). Develops and coordinates applicable UFCs and industry standards, ensuring compliance with Air Force and DoD policies and directives. AFCEC/CO is the technical subject matter expert and the technical authority in the following subject areas: electrical, mechanical, petroleum, oils and lubricants, corrosion, civil, roofing, antiterrorism, nuclear, structural, airfield geometrics, cybersecurity, energy surety, fire protection, life safety and life-cycle cost engineering.

2.10. AFCEC Planning & Integration Directorate (AFCEC/CP). AFCEC/CP issues the design instruction to the design manager/construction manager (DM/CM) authorizing the start of project design, and initiates 10 USC § 2807, *Architectural and engineering services and construction design*, notifications.

2.11. AFCEC Environmental Directorate (AFCEC/CZ). AFCEC/CZ provides a natural resources subject matter expert that serves as a natural resources program manager and provides technical assistance and guidance to the Air Force on natural resources issues. As an exception, the Deputy Director, ANG, programs for resources implements an Integrated Natural Resources Management Plan at ANG installations.

2.12. Air Force Services Center (AFSVC). AFSVC is the subject matter expert and technical authority for functional and operational design and construction criteria for Category B and Category C NAF activity construction.

2.13. Major Command (MAJCOM). The MAJCOM requiring or using facilities has overall responsibility for new mission bed-down requirements identification, and for prioritization of existing mission MILCON requirements.

2.14. Host MAJCOM. The Host MAJCOM is the command that provides base operating support on an installation and is commonly referred to as the 'supplier' in host-tenant support agreements. The Host MAJCOM oversees the installation where the MAJCOM mission and MILCON are being executed. Host MAJCOMs, with the support of AFIMSC and AFCEC, are responsible for ensuring appropriate siting, architectural, environmental, and master plan integration are completed as necessary during project programming and execution. When either of the Reserve Components function as the host, NGB or AFRC will coordinate as host with AFIMSC and AFCEC.

2.15. Reserve Components. The Chiefs of the NGB and Air Force Reserve develop supplementary instructions and or guidance unique to the ANG and AFRC construction programs and oversee management of their respective programs. In accordance with Title 10, U.S.C. **Chapter 133** *Service, Supply, Procurement*, the ANG and the AFRC facilities programs are executed under Title 10, U.S.C. **Chapter 1803**. As such they may coordinate with AFIMSC and portions of AFCEC, but execute under Title 10, U.S.C. **Chapter 1803**.

2.16. Base Civil Engineer (BCE). The Base Civil Engineer initiates MILCON planning and programming (DD Form 1391, *FY Military Construction Project Data*) development, and oversees and coordinates base activities for MILCON projects at their installation.

2.16.1. The Base Civil Engineer ensures base civil engineer representatives participate in design reviews, pre-bid and site visits, and the pre-construction conference.

2.16.2. The Base Civil Engineer reviews and approves material submittals for exterior and interior finishes. The Base Civil Engineer reviews equipment submittals for maintainability and compatibility with other base systems in compliance with the installation's Architectural Compatibility Plan. The Base Civil Engineer sends recommendations to the construction manager.

2.16.3. The Base Civil Engineer ensures coordination of all environmental permits and certifications with environmental section and governing bodies and sends all required documentation to the construction manager.

2.16.4. The Base Civil Engineer promptly sends user's change requests to the appropriate office for approval and monitors status. Refer to the *AFCEC MILCON Change Order Management Plan* and the *Program Management Plan for Air Force MILCON Execution* for procedures regarding construction changes. Both documents are available at the WBDG website.

2.16.5. The Base Civil Engineer serves as the construction agent's point of contact for government-furnished property and/or equipment.

2.16.6. The Base Civil Engineer participates in the pre-final and final inspections and receives training on equipment. The Base Civil engineer receives facility documentation from the construction agent, including operation and maintenance manuals, warranty and guarantee documents, as-built drawings, and completed DD Form 1354, *Transfer and Acceptance of DoD Real Property*.

2.16.7. The Base Civil Engineer ensures that newly constructed facilities are not modified within 12 months of the placed-in-service date for the facility unless the modification meets the requirements outlined in AFI 32-1020.

2.16.8. The Base Civil Engineer initiates or coordinates on proposed deviations to UFC mandatory criteria.

2.16.9. The Base Civil Engineer ensures economic analyses are initiated and completed.

2.17. Host-Tenant. Host and tenant agencies manage situations per AFI 25-201, *Intra-Service, Intra-Agency, and Inter-Agency Support Agreements Procedures*. By agreement of host and tenant, the tenant organization may fund design and construction.

2.18. Design Manager/Construction Manager (DM/CM). AFCEC/CF and AFIMSC Detachments provide management and oversight of MILCON project execution via DM/CMs for MILCON appropriations including specified MILCON projects, unspecified minor military construction projects, NAF MILCON projects, Base Realignment and Closure projects, Military Family Housing projects, and the projects for the Energy Resilience and Conservation Investment Program. AFRC/A4 and NGB/A4 provide a similar capability for the reserve components. The Air Force does not provide management and oversight of MILCON project execution for projects sponsored by US Special Operations Command, Defense Health Agency and other DoD components sponsoring projects at Air Force installations; this is the responsibility of the DoD component sponsoring the project.

2.18.1. Design Manager (DM). The design manager determines the execution strategy in concert with Air Force policies and goals along with MAJCOM and installation engineer stakeholders. The DM coordinates with the construction agent to determine the appropriate project execution strategy.

2.18.1.1. The DM monitors design progress and updates project data in an Air Force-approved project management database. The DM ensures environmental planning personnel, either the installation or the AFCEC Environmental Impact Analysis Process point of contact, participate in the planning charrette for the MILCON project.

2.18.1.2. The DM is required to satisfy criteria specified in UFC and Unified Facility Guide Specifications (UFGS) for facility design. See **paragraph 3.1**, for guidance when deviation from these criteria is warranted.

2.18.1.3. The DM verifies scope with programmers and interfaces between planning and design.

2.18.1.4. DM roles for the ANG are addressed by NGB/A4 and each state's United States Property and Fiscal Officer with Title 10, U.S.C **Chapter 1803**, and Title 32 U.S.C. **Chapter 7**.

2.18.2. Construction Manager (CM).

2.18.2.1. The CM evaluates construction progress.

2.18.2.2. The CM reports progress and manages the construction change request process. The CM keeps project data in a designated Air Force-approved project management database up to date and ensures other stakeholders enter data in a timely manner. Project management databases support internet publishing and reporting requirement under 10 USC § 2851, *Supervision of military construction projects,* as observed by the U.S. Government Publishing Office.

2.18.2.3. The construction agent provides a government cost estimate with change request and secures approval prior to construction agent issuance to contractor. The construction manager verifies all construction changes are within the authorized scope of work and is responsible for obtaining finalized construction change requests from the construction agent. The construction manager tracks and reports cost growth in an Air Force-approved project management database.

2.18.2.4. The CM reviews all project changes impacting cost, scope, schedule, functionality, appearance and maintainability, to ensure compliance with *Program Management Plan for Air Force MILCON Execution*. The CM coordinates changes with the Base Civil Engineer and requiring and using MAJCOMs. The CM approves or disapproves changes affecting functionality, exterior appearance, or maintainability. The CM ensures changes do not compromise fire, safety, environmental, or health criteria established in original design compliance requirements, and ensures appropriate subject matter experts evaluate any questionable changes.

2.18.2.5. The CM reviews and approves or disapproves non-mandatory change requests, within funds available, in accordance with the *Program Management Plan for Air Force MILCON Execution*. The CM reviews change requests promptly and restricts approval consideration to those requests necessary to meet the mission.

2.18.2.6. The CM ensures construction meets Air Force standards and user needs.

2.18.2.7. The CM works with the construction agent to assist in correcting design errors and omissions.

2.18.2.8. The CM participates in Red Zone meetings to discuss, define, and achieve consensus on remaining construction activities, physical completion, and financial closeout of the project.

2.18.2.9. The CM participates in pre-final and final inspections as required and ensures the user participates in pre-final and final inspections to help the Base Civil Engineer identify deficiencies to the construction manager.

2.18.2.10. The CM submits justification packages for cost and scope variations and reprogramming.

2.18.2.11. The CM ensures the construction agent delivers warranty and guarantee information to the Base Civil Engineer in transferring facility ownership responsibility.

2.18.2.12. The CM ensures the construction agent delivers as-built drawings in requested media and format to the Base Civil Engineer, within specified contract requirements.

2.18.2.13. The CM ensures the construction agent has the contractor conduct operations and maintenance training and any required commissioning, and ensures the contractor delivers operations and maintenance manuals to the Base Civil Engineer prior to project closeout.

2.18.2.14. The CM ensures the construction agent prepares and submits interim and final DD Form 1354 in accordance with UFC 1-300-08, *Criteria for Transfer and Acceptance of DoD Real Property with Change 2*. The CM ensures all DD Form 1354s used to place real property assets into service are completed within the timelines specified in AFI 32-9005, *Real Property Accountability*, per Air Force e-Publishing.

2.18.2.15. The CM ensures the construction agent conducts end-of-warranty inspection with the user and Base Civil Engineer.

2.18.2.16. The CM actively monitors financial completion of a project to enable withdrawal of unused funds in a timely manner.

2.18.2.17. The CM will notify the environmental planning personnel of any changes in design or other issues that may impact environmental analysis.

2.18.2.18. The CM ensures compliance with criteria specified in UFC and UFGS for facility design and construction. See **paragraph 3.1**, Deviations to Criteria, for guidance when deviation from these criteria is warranted.

2.18.2.19. CM roles for the ANG are addressed by NGB/A4 and each state's United States Property and Fiscal Officer in accordance with Title 10, U.S.C **Chapter 1803**, and Title 32 U.S.C. **Chapter 7**, *Title Facilities for Reserved Component*.

2.18.3. Financial Management and Oversight. The CM ensures coordination of project funding with the resource manager of the appropriation and supports oversight of project commitments, obligations and costs.

2.19. DoD Construction Agent (DCA or DA/CA). Per Department of Defense Directive (DoDD) 4270.05, *Military Construction, with Change 1*, the DoD construction agent is the DoD component responsible for performing the contracting function and overseeing the technical execution of military construction projects. For Air Force and Air Force Reserve MILCON projects, the DoD construction agent may be the United States Army Corps of Engineers (USACE), Naval Facilities Engineering Command (NAVFAC), AFIMSC Detachments, or AFCEC. AFIMSC Detachment 4, acting on behalf of the Air Force, is the design and construction agent for projects in the United Kingdom and British Isles. For ANG MILCON projects, the DoD construction agent is the United States Property and Fiscal Officer for the State or Territory. See DoDD 4270.05 for details on alternate DoD construction agents for MILCON, NAF and military family housing projects.

2.19.1. Requests for alternate DoD construction agent authority, to include installation civil engineer squadrons, should be identified early and agreed upon by the proposed and designated DoD construction agents. The DoD construction agent for a MILCON project certifies, prior to final design approval, the final facility design is within the scope of work authorized by Congress and that it provides a complete and usable facility.

2.19.2. The DoD construction agent for a MILCON project certifies, prior to final design approval, the final facility design is within the scope of work authorized by Congress and provides a complete and usable facility.

2.19.3. ANG project executed under Federal Acquisition (Title 10, U.S.C. Section 18233 *Acquisition*, paragraph (a)(1)) will follow this AFI, while facilities acquired under grants must follow state acquisition authorities (, paragraphs (a)(2) through (6)).

Chapter 3

GUIDANCE AND PROCEDURES.

3.1. Deviations to Criteria. For Air Force installations within the United States, deviations from UFCs and model building codes may be authorized by submitting a deviation request to the appropriate authority as defined herein. Deviations from life safety, occupational safety, security, antiterrorism, or other criteria required by federal law or DoD direction are not permitted unless specifically authorized in legislation or Department of Defense direction. **(T-0).** Approved deviations to criteria apply to a specific facility project and remain in effect indefinitely or until re-evaluation or reconfirmation is required by other guidance. A permanent deviation is called an exemption per MIL-STD-3007G, Standard Practice Unified Facilities Criteria, Facilities Criteria and Unified Facilities Guide Specifications. A deviation may also be a short-term deviation and is a called a waiver per MIL-STD-3007G. Air Force installations outside the United States shall comply with applicable international agreements and host nation standards. **(T-0).** If construction criteria are not addressed in applicable international agreements, follow the more stringent of United States or host nation standards. When the host-nation and Air Force disagree on which is more stringent, solutions should be determined by collaboration between the Air Force subject matter expert, host-nation liaison, and other applicable stake holders (Combatant Command, Department of State, etc.). For impasses reconciling host nation and United States standards, seek assistance from AFCEC/CF. Deviations required by ANG units will seek assistance from NGB. **(T-1).**

3.2. Joint Basing. Joint basing exists where two or more Service Component installations have merged into one installation and one Component has been appointed as the lead (i.e. supporting Component). The Supporting Component is responsible for providing installation support to the Joint Base. The supported Component(s) transfers installation management to the Supporting Component.

3.2.1. Except as provided below, the supporting Component's policies, procedures, and guidance should govern facilities planning, design, acquisition, construction, sustainment, modernization, and disposal actions at joint bases.

3.2.1.1. The supported Component may use their own unique planning, architectural, and/or design criteria only when required to enable unique mission-related capabilities. Where the Air Force is the supported component on a Joint Base, the installation should ensure the relevant memorandum of agreement or other support agreement with the supporting component requires Wing Commander approval of design and construction of facilities impacting the airfield, airspace, or airfield operations.

3.2.1.2. In accordance with the Joint Base Operations Guide published by the Office of the Deputy Secretary of Defense, ANG and Army National Guard facilities and land are tenant property and do not constitute a supported component.

3.2.2. The supporting Component's DoD construction agent shall be used for all MILCON at joint bases. **(T-1).**

3.2.3. New Construction. The Component generating a new construction requirement is responsible for programming the necessary planning, design, construction and sustainment funding. The Component generating an increase to the Joint Base population is responsible

for any new programming, planning, design and construction needed to expand installation support facilities to accommodate the population increase. In all cases, reuse of existing facilities is the preferred approach over new construction whenever feasible. When planning and programming projects that impact the installation's building footprint, a building utilization rate of 80% should be targeted. Preference should be given to consolidation or conversion efforts.

3.3. Demolition and Disposal. The organization requiring the new construction is responsible for programming the demolition of their vacated buildings. If another Component occupies the vacated buildings, follow-on demolition responsibility is relinquished. In all cases, demolition of facilities no longer needed as a result of new construction shall be accomplished at the earliest opportunity after funds are available. **(T-2).** Installations ensure that consolidation efforts using demolition funds include demolition resulting in a net reduction of real property. Demolition projects associated with consolidation projects should award no later than the end of the period of performance for the consolidation project. **(T-2).** Once a project is appropriated and authorized by Congress, Commanders will ensure that the demolition work identified on the DD Form 1391 is completed. Any exception to this policy must be documented in a waiver approved by AF/A4C. Substitution of another facility (or facilities) of equal or greater floor area for a facility identified in the DD Form 1391 for demolition may only be made if approved by AF/A4CF. Programing for ANG demolition may be submitted to NGB/A4AD.

3.4. Design Development. The DM/CM should ensure that design of a proposed construction project is compliant with the following documents:

3.4.1. Installation Development Plan (IDP). IDPs are required at all Air Force installations as detailed in AFI 32-1015, *Integrated Installation Planning*. The installation development plan is a summary document that provides information at an appropriate level of detail for the installation, the command, and other decision-makers to understand the character and structure of the installation, and its development potential. The DM/CM and DoD construction agent will ensure that the designer of record designs infrastructure systems and/or facilities in compliance with the installation development plan. **(T-3).**

3.4.2. District Plan. A district plan is a plan for an identifiable geographic area based on multiple compatible uses within that area. A single district may contain administrative, commercial, and residential uses. A base is comprised of adjacent districts (e.g. industrial, airfield, train yards, munitions storage, campuses).

3.4.3. Project Management Plan (PMP). The PMP presents the strategic decisions on the project schedule, design, acquisition, and construction agreed upon by the project stakeholders. The DM/CM prepares the PMP. A PMP template is available in the Construction Criteria Base section of the WBDG website.

3.4.4. Project Siting. Refer to AFI 32-1015 and AFI 32-1020. The designer shall coordinate significant variations from the IDP and District Plan with the project stakeholders before design begins. **(T-1).** Projects shall not be re-sited after completion of the 35% design. AFCEC/CF is the waiver authority for re-siting after 35% design is complete and will consider waiver approvals based on life-cycle cost benefit or the circumstances in which the initial siting would cause mission failure. ANG project sited modifications will be submitted to NGB/A4A. **(T-1).**

3.4.5. National Environmental Policy Act (NEPA). Once siting alternatives are sufficiently developed, project siting will occur in coordination with the environmental planning function, to ensure project siting is consistent with the NEPA procedural requirements. For construction projects proposed for locations outside the U.S., the siting process must follow applicable requirements for enduring locations in accordance with AFI 32-7091, *Environmental Management Outside the United States*, or contingency locations in accordance with DoDI 4715.22, *Environmental Management Policy for Contingency Locations*, and DoDD 3000.10, *Contingency Basing Outside the United States.* **(T-0).** Once the project and its alternatives are sufficiently developed, the Environmental Impact Analysis Process may proceed. Refer to **paragraph 4.2.3.2** for guidance on the Environmental Impact Analysis Process.

3.4.6. The NGB is responsible for key roles of NEPA execution on behalf of the ANG.

3.5. Air Force Program Oversight and Reporting.

3.5.1. Project Management Information Technology Databases. AFCEC, AFRC/A4 and NGB/A4 manage the execution of the Air Force MILCON program. Each is responsible for documenting project data in an Air Force-approved project management database from the start of project planning through financial closeout. **(T-1).** Project management databases currently approved by the Air Force include Automated Civil Engineering System-Project Management (ACES-PM), Next Generation IT (NexGEN IT), and the ANG Project Data System

3.5.2. Project Management Database Business Rules. AFCEC/CP publishes annual business rules for management of project planning, programming and budgeting data. AFCEC/CF publishes business rules for management of project execution data in the Air Force-approved databases. Business rules must support the goals, metrics, and strategic guidance governing the military construction program, as articulated in the *Program Management Plan for Air Force MILCON Execution.* **(T-1).**

3.5.3. Program Management Review. AFCEC/CF shall provide a Headquarters Air Force senior leader-level PMR on the MILCON program at least twice per fiscal year. **(T-2).** The PMR should address MILCON program trends and health broadly, not just project-level execution details. Program health includes planning and design status for projects not yet authorized or appropriated, award and execution status of authorized and appropriated projects, and other emergent or relevant MILCON topics of interest for senior leaders and Congress.

3.5.4. 10 USC § 2851 Reporting Requirements. AFIMSC, AFRC/A4 and NGB/A4 provide and maintain data in the Data Analytics and Integration Support database as specified by the Assistant Secretary of Defense for Defense memo, *Guidance for Reporting Military Construction Data,* and A4C guidance supporting monthly and annual reporting of military construction for compliance with 10 USC § 2851. **(T-1).**

Chapter 4

DESIGN PROCEDURES.

4.1. Scope. This chapter addresses design procedures and directives for Air Force MILCON projects. It also addresses the design management process, design instructions, field DIs, relevant UFC documents, authorities for funding, cost controls, reprogramming, and change orders. In addition to the general design requirements below, refer to *Program Management Plan for Air Force MILCON Execution* for additional design activities, design and construction codes, and management controls.

4.2. Applicable Directives.

4.2.1. General Design Requirements. The objective for all Air Force facilities is to enable mission execution and to enhance occupant safety and quality of life by providing sustainable facilities. The application of asset management principles to include space optimization, energy efficiency and similar efforts to optimize initial costs while reducing facility life-cycle costs is critical to long term value for the Air Force. Optimization in function, design, construction and cost are goals for all MILCON projects. In addition to the cost management guidance below, designers should comply with installation planning criteria, architectural compatibility and facilities standards.

4.2.1.1. Air Force Corporate Facilities Standards (AFCFS). All Air Force designs shall conform to the standards specified in the AFCFSs, an electronic document available at the WBDG website. **(T-0).** The AFCFSs shall also be used to formulate individual Installation Facilities Standards. **(T-2).** The AFCFSs and IFSs taken together clearly define the acceptable range of quality for all Air Force design and construction.

4.2.1.2. Standard Facilities Designs. Design teams shall utilize Air Force standard facilities designs, when available for a specific facility type. **(T-2).** These designs are most often available as building modules and are available at the WBDG website. When no Air Force standard design is available the design team shall determine whether the design agent has a standard design for the facility type and use that standard design if available. **(T-2).** Any exception to this policy must be documented in a waiver approved by AF/A4C. **(T-2).** Deviations required by ANG units will seek assistance from NGB. **(T-1).**

4.2.1.3. Functional and Flexible Design. Air Force facilities should be designed to meet mission requirements with the flexibility to accommodate changes in use with a minimum expenditure of resources.

4.2.1.4. Design for Accessibility. Design shall comply with the most recent DoD and Air Force accessibility policy for people with disabilities. **(T-0).**

4.2.1.5. Commercial and DoD Facility and Infrastructure Design and Construction Standards and Criteria.

4.2.1.5.1. Unified Facilities Criteria (UFC) Program. The UFC program is implemented by MIL-STD-3007G, the use of and compliance with UFCs is mandatory **(T-1).** AFCEC manages the UFC program for AF/A4C. Unless stated otherwise in the applicable UFC, all requests for waivers to UFCs must be submitted

through the owning MAJCOM and AFCEC to AF/A4C for review and approval or disapproval by AF/A4C-2. **(T-1).** ANG units should contact NGB/A4 for waiver approval. **(T-1).**

4.2.1.5.2. Engineering Technical Letters (ETL). Engineering Technical Letters are authorized for continued use as directive publications until they are incorporated into an AFI, AFMAN, UFC, or rescinded.

4.2.1.5.3. Whole Building Design Guide (WBDG). The WBDG website, with its Construction Criteria Base electronic library, is the official distribution medium for all non-sensitive technical DOD facility-related documents. The WBDG website contains the latest UFCs, UFGS, Air Force Design Guides, and standard facilities designs. All UFC, UFGS, Design Guide, and standard design documents can be viewed at **http://www.wbdg.org**.

4.2.1.6. Space Criteria. Facility sizes are based on functional analyses while minimizing overall designed space. AFMAN 32-1084, *Standard Facility Requirements,* provides general planning and programming guidance. For facilities in the National Capital Region, refer to AFI 32-9010, *Management and Reporting of Air Force Space and Building Services in OSD Assigned Facilities and the Washington DC Area*. See Air Force Reserve Command Handbook 32-1001 for Air Force Reserve-occupied facilities and ANGH 32-1084, *Facility Space Standards*, for ANG-occupied facilities. Medical Facilities use DoD and Service-specific medical space planning criteria that is maintained and applied by the Office of the Assistant Secretary of Defense Health Affairs, and the Air Force Health Facilities Division.

4.2.1.7. Working within Airfield Imaginary Surfaces. For airfield surfaces owned by the Air Force refer to AFI 32-1015; Title 14, Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace. UFC 3-260-01 *Airfield and Heliport Planning and Design, With Change 1*. For airfields under Federal Aviation Administration oversight, (Joint and civilian use) are specifically subject to Federal Aviation Administration circulars.

4.2.1.8. Preservation of Historic Resources. DoDI 4715.16, *Cultural Resources Management*, provides policy, prescribes procedures, and assigns responsibilities for managing archaeological and historic resources in and on properties and lands under DoD control. Refer to AFPD 32-70, *Environmental Considerations in Air Force Programs and Activities*; AFMAN 32-7003, *Environmental Conservation*; and, for guidance and compliance requirements.

4.2.1.9. Antiterrorism. All DoD facilities must comply with the latest UFCs and directives governing Antiterrorism standards. **(T-1).** Refer to UFC 4-020-01, *DoD Security Engineering Facilities Planning Manual*, to establish Antiterrorism requirements. Refer to UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings, with Change 1*, for minimum AT criteria for inhabited facilities. Refer to UFC 4-022-01, for further guidance on Entry Control Facilities.

4.2.1.10. Model Building Codes. Refer to UFC 1-200-01, *DoD Building Code, with Change 1* and the *United States Air Force Project Managers' Guide for Design and Construction* for specific guidance.

4.2.1.11. Sustainable Design and Development. Sustainable design and development principles shall be incorporated into all Air Force design and construction projects. **(T-2).** Refer to UFC 1-200-02; UFC 2-100-01, *Installation Master Planning*; and the most current Air Force sustainable design and development policy or implementing guidance for specific direction including mandatory Federal compliance tracking and reporting, and third-party certification requirements. **(T-0).** All references are available on the WBDG website.

4.2.1.12. Fire Protection. Fire protection features shall be in accordance with UFC 3-600-01, *Fire Protection Engineering for Facilities*. **(T-1).** Follow AFI 32-10141, *Planning and Programming Fire Safety Deficiency Correction Projects*. AFCEC/CO shall review all requirements and designs associated with hangar fire protection systems prior to construction. ANG design reviews will be addressed by NGB/A4O. **(T-1).** Additional information and specific fire protection technical guidance is available on the WBDG website.

4.2.1.13. Occupational Safety and Health Administration (OSHA). Air Force facilities will conform to all applicable standards published by OSHA. **(T-0).** OSHA Standards for facilities are found primarily in 29 CFR Part 1910, *Occupational Safety and Health Standards*, and 29 CFR Part 1926, *Safety and Health Regulations for Construction*.

4.2.1.14. Explosive Safety Standards. DoD Explosive Safety Board reviews designs for construction or modification of ammunition and explosives facilities, or any planned facilities within quantity-distances arcs of ammunition and explosives facilities, in accordance with Department of Defense Manual 6055.09, D*oD Ammunition and Explosives Safety Standards*, DoDD 6055.09E, *DoD Ammunition And Explosives Safety Standards* and DESR 6055.09, AFMAN 91-201, *Explosives Safety Standards* **(T-0).**

4.2.1.15. Cybersecurity. UFC 4-010-06, *Cybersecurity Of Facility-Related Control Systems*, describes requirements for incorporating cybersecurity in the design of all facility-related control systems. Facility-related control systems are a subset of control systems that are used to monitor and control equipment and systems related to DoD real property facilities (e.g., building control systems, utility control systems, electronic security systems, and fire and life safety systems). A control system typically consists of networked digital controllers and a user interface which are used to monitor, and generally also to control equipment. There are many types of control systems ranging from building control systems to manufacturing control systems to weapon control systems, all with different names and terminology. UFC 4-010-06 defines a process based on the risk management framework suitable for control systems of any impact rating and provides specific guidance suitable for control systems assigned low or moderate impact level.

4.2.1.16. Interior Design. Refer to UFC 3-120-10, *Interior Design.*

4.2.1.17. Landscape Architecture. Refer to the *Master Landscape Construction Specifications* and UFC 3-201-02, *Landscape Architecture*, both available at the WBDG website, and the applicable installation's Architectural Compatibility Plan.

4.2.1.18. Corrosion Prevention and Control Requirements. Provide design detailing, and use materials, systems, components, and coatings that are durable and minimize the need

for preventative and corrective maintenance over the life-cycle of a facility. Provide a comprehensive corrosion prevention and control strategy. Many facility guide specifications include durable materials, coatings, or protective measures for corrosive environments. However, even in benign environments, where options are stated in facility criteria and guide specifications, use the more corrosion-resistant option whenever possible. Considerations include life-cycle maintenance costs and potential for corrosive microenvironments. General guidance and training on corrosion prevention and control issues are available at the Corrosion Prevention and Control Source webpage of the whole building design guide website.

4.2.2. Cost Management. Use life-cycle cost analysis and Value Engineering (VE) to manage and optimize project costs. Cost optimization takes into account upfront capital cost savings and long-term life-cycle savings (lower maintenance cost and or better durability). The cost-benefit analysis, and life-cycle cost analysis are methods for evaluating project cost effectiveness.

4.2.2.1. Life-Cycle Cost. Use the present value discounting approach described in AFI 65-501, *Economic Analysis,* and AFMAN 65-506, *Economic Analysis,* unless otherwise specified. Because NAF-funded projects may use a different decision-making process, contact the funding organization for further information. Perform life-cycle cost analyses in accordance with 10 CFR Part 436, *Federal Energy Management and Planning Programs.* To prepare a life-cycle analysis, use the National Institute of Standards and Technology Handbook 135, *Life-Cycle Costing Manual for the Federal Energy Management Program,* and the Annual Supplement to Handbook 135, *Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis.*

4.2.2.2. Value Engineering (VE). VE analyzes and improves design and construction projects by achieving an optimum balance between function, performance, quality, safety, and cost. Conduct VE studies early in the design process, as soon as adequate information is available. *Office of Management and Budget (OMB) Circular No. A-131, Value Engineering*, is the federal directive that requires federal agencies to consider and use VE as a management tool to ensure realistic budgets and maintain acceptable quality in program and acquisition functions. The OMB Circular currently requires VE for new projects and programs when the project cost estimate is at least $5 million or such lower dollar threshold as determined by the senior accountable official and identified in the agency's VE guidelines. Designs shall also comply with DoDI 4245.14, *DoD Value Engineering (VE) Program*. **(T-0).** A formal third-party value engineering study is recommended on Air Force MILCON projects with a programmed amount over $5 million. A value engineer study shall not eliminate features required to comply with OSHA standards and other laws. **(T-0).**

4.2.3. Environmental Criteria.

4.2.3.1. Environmental Quality Standards. All projects must meet applicable federal, state, and local environmental standards and regulations in the United States. **(T-0).** executed at enduring locations outside the United States must comply with DODI 4715.05, *Environmental Compliance at Installations Outside the United States*. All projects executed at contingency locations must comply with DoDI 3000.10, *Contingency Basing Outside the United States,* and DoDI 4715.22, *Environmental Management Policy*

for Contingency Locations. All remediation projects executed outside the United States at enduring locations must comply with DODI 4715.08, *Remediation of Environmental Contamination Outside the United States*. **(T-0).**

4.2.3.2. Environmental Impact Analysis Process. The Environmental Impact Analysis Process is the Air Force process for complying with NEPA. Ensure all construction projects comply with 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP),* and that all design and construction decisions are consistent with the results of the process. **(T-0).** EIAP outside the US is addressed in 32 CFR 187, Environmental Effects Abroad of Major Department of Defense Actions. EIAP at enduring locations is addressed extensively in AFI 32-7091, *Environmental Management outside the United States*, Chapter 5. EIAP at contingency locations is addressed in DoDD, *Contingency Basing Outside the United States*, and DoDI, *Environmental Management Policy for Contingency Locations*. The Environmental Impact Analysis Process, including permits, should be completed prior to concept design completion to facilitate incorporation of mitigation and/or required actions into the design. Proper conduct of the Environmental Impact Analysis Process requires the appropriate environmental planning functional representative to participate in the MILCON design charrettes. The environmental planning functional representative may come from base-level or from AFCEC/CZ, depending on the scale of the MILCON project. ANG bases may come from NGB/A4A. Involvement of the environmental planning functional representative in the planning process ensures full consideration of alternatives and enables development of a plan to complete the Environmental Impact Analysis Process. The Environmental Impact Analysis Process should address all environmental constraints within and surrounding the limits of construction associated with the project. In all cases, the Environmental Impact Analysis Process shall be complete prior to awarding the construction. **(T-0).**

4.2.3.2.1. Environmental compliance requirements are extensive. Relevant subject matter experts must be involved early in the MILCON planning process to ensure compliance with applicable law and policy. **(T-2).** See AFI 32-1015, AFI 32-7001, *Environmental Management*; and DAFI 90-2002, *Interactions with Federally Recognized Tribes* for further details. For MILCON involving real estate acquisition, comply with requirements of AFI 32-7066, *Environmental Baseline Surveys in Real Property Transactions*.

4.2.3.2.2. The AF Form 813, *Request for Environmental Impact Analysis*, is used for documenting the need to conduct environmental analysis or apply certain categorical exclusions. Categorical exclusions are not appropriate at overseas locations. AFI 32-1020 requires a Certificate of Compliance addressing the status of compliance with various environmental regulations including the Environmental Impact Analysis Process. The Certificate of Compliance is then summarized in the DD Form 1391. The Certificate of Compliance must be complete prior to project submission to the Air Force MILCON Working Group. **(T-2).**

4.2.3.3. Floodplains and Wetlands Regulations. Avoid siting projects in wetlands. Projects may be sited in floodplains if necessary, with proper risk mitigation. Ensure projects in floodplains or flood risk areas address flood risk condition protection requirement minimums outlined in UFC 1-200-01, or in accordance with more stringent local criteria. **(T-0).** Per Executive Order (EO) 11988, *Floodplains Management*; EO 11990, *Protection of Wetlands*; and AFMAN 32-7003, *Environmental Conservation*, in order to conduct construction in Floodplains or Wetlands a Finding of No Practicable Alternative, based on the applicable standard and worded appropriately, must be included within EIAP. **(T-0).** The EPF will coordinate with the MAJCOM NEPA Liaison to ensure an authorized official makes the finding. **(T-1).** AFCEC shall prepare an annual report with the annual budget submission for SAF/IEE's approval on all proposed MILCON projects that are sited within or partially within the 100-year floodplain. The report shall include the following: an assessment of flood vulnerability for the proposed project, any information concerning alternative construction sites that were considered, an explanation of why those sites do not satisfy mission requirements, and a description of planned flood mitigation measures. **(T-0).**

4.2.3.4. Environmentally Preferable Products and Materials. Comply with the DoD Green Procurement Program by using products and materials that are environmentally preferable. **(T-0).** Refer to 42 USC Chapter 82, *Solid Waste Disposal*; 42 USC Chapter 91 Subchapter IV Part B, *Energy Conservation Plans;* and 42 USC Chapter 133, *Pollution Prevention.*

4.2.3.5. Toxic and Hazardous Materials. All Air Force construction projects in the United States must comply with requirements and work practices provided in; 29 CFR §1926.1101, Asbestos; 40 CFR Part 61 Subpart M, National Emission Standard for Asbestos; and 40 CFR Part 763, Asbestos. **(T-0).** Air Force projects outside the United States must comply with applicable international agreements, country-specific final governing standards and Overseas Environmental Baseline Guidance Document for enduring locations, or Contingency Location Environmental Standards for contingency locations (whichever applies), and geographic combatant command policy. **(T-0).**

4.2.3.6. Asbestos. All Air Force construction projects in the United States and its must comply with requirements and work practices in 29 CFR §1926.1101, *Asbestos*; 40 CFR Part 61 Subpart M, *National Emission Standard for Asbestos*; and 40 CFR Part 763, *Asbestos*. **(T-0).** Demolition and construction projects that involve asbestos survey, removal, abatement, and disposal actions must separately track the cost associated with each of these actions along with a per unit cost. **(T-1).** Air Force installations in foreign countries must comply with applicable international agreements, country-specific final governing standards and Overseas Environmental Baseline Guidance Document for enduring locations, or Contingency Location Environmental Standards for contingency locations **(T-0).**

4.2.3.7. Lead-Based Paint. Follow the requirements and work practices in 42 USC § 4831, *Use of lead-based paint,* 40 CFR Part 745, *Lead-Based Paint Poisoning Prevention in Certain Residential Structures*, 40 CFR Subchapter I, *Solid Wastes*; Public Law 102-550, *The Residential Lead-Based Paint Hazard Reduction Act of 1992,* and 15 USC Chapter 53 Subchapter I, *Control of Toxic Substances*. Air Force installations in foreign countries must comply with applicable international agreements, country-specific final

governing standards and Overseas Environmental Baseline Guidance Document for enduring locations, or Contingency Location Environmental Standards for contingency locations. **(T-0).**

4.2.3.8. Solid Waste Management. AFMAN 32-7002 requires Air Force installations to track and report the amount of construction and demolition debris that is recycled and disposed of in landfills. Refer to UFC 3-250-07, *Standard Practice for Pavement Recycling*, UFGS 01 74 19, *Construction Waste Management and Disposal*, and UFGS 02 41 00, *Demolition and Deconstruction Guide*, for additional guidance.

4.2.3.9. Ozone Depleting Substances (ODSs). 40 CFR Part 82, *Protection of Stratospheric Ozone*, establishes requirements regarding the service, maintenance, repair, and/or disposal of a wide array of equipment containing ozone depleting substances, and is applicable to all Air Force installations. **(T-0).** For further detail on the Ozone Depleting Substances program, refer to AFI 32-7001 and AFMAN 32-7002. Air Force installations in foreign countries must comply with applicable international agreements, country-specific final governing standards and Overseas Environmental Baseline Guidance Document for enduring locations, or Contingency Location Environmental Standards for contingency locations (whichever applies), and geographic combatant command policy. **(T-0).**

4.2.3.10. Storm Water Management during Construction. All construction activities must comply with federal, state and local regulations regarding storm water discharges during construction**. (T-0).** Comply with and implement requirements for construction storm water permitting during construction. Refer to AFMAN 32-1067, *Water and Fuel Systems*, for more information and guidance. Ensure construction contractor complies with storm water permitting requirements. **(T-0).**

4.2.3.11. Energy Independence Security Act (EISA) Compliance. Public Law 110-140, *Energy Independence and Security Act of 2007*, section 438 requires federal developments that exceed 5,000 square feet to maintain or restore pre-development hydrology. Design and construction shall account for restoring post-construction site run-off to meet Energy Independence Security Act 438 requirements. **(T-0).**

4.2.3.12. Site Contamination. Constructing facilities on or near a contaminated site may have ramifications affecting human health and the environment. Accordingly, the BCE should ensure appropriate organizations (e.g., installation planners) consider a compatible land use based on current site conditions and the selected or projected remedial action alternatives. Contamination that must be remediated before or during construction of a facility or other project are addressed using MILCON funds, unless on-site construction work is delayed until after the contamination is addressed and the contaminated site is closed under the Defense Environmental Restoration Program. Unforeseen costs for removal and disposal of contamination encountered within the project footprint during execution are paid by the MILCON.

4.3. Design Management.

4.3.1. Design Authorization. Prior to proceeding with design, the requirement owner for the project will validate the requirements for the project. For projects at installations where the Air Force is not the accountable entity, the accountable entity should validate the requirements before proceeding with design as specified in UFC 1-300-08, *Criteria for Transfer and Acceptance of Military Real Property, with Change 2* **(T-2).** Once all planning requirements are met, AFCEC/CP provides design authorization to the design manager. Title 10 U.S.C. **Chapter 133** requires ANG projects be executed under Title 10 U.S.C. **chapter 1803**. The issuance of the Design Instruction marks the start of project execution whether or not design funding has been issued.

4.3.2. Design Funds (MILCON). 10 USC §2807(a),*;* 10 USC § 9540(a), *Architectural and engineering services*; and Defense Federal Acquisition Regulation Supplement (DFARS), Subpart 236.6, *AE Services*, authorize contracting for and administration of A-E services for project design. 10 USC § 9540, limits the portion of the A-E's contract price (or fee) for producing plans and specifications to six percent of the estimated cost of the construction project. **(T-0)**. The six percent (6%) limit also applies to construction contract modifications (See DFARS Subpart 236.6.) This limitation does not include site investigations, studies and surveys or other services that are not an integral part of the production and delivery of plans, designs, and specifications. 40 USC Chapter 11, *Selection of Architects and Engineers*, commonly called the *Brooks Act*, provides the authority, definitions, and basic procedures for the federal government's selection of A-E firms for professional services on facility projects. 10 USC § 2855(a), *Law applicable to contracts for architectural and engineering services and construction design,* applies the Brooks Act to military construction; however, the Brooks Act is not applicable to NAF contracting. For additional guidance, refer to Air Force Federal Acquisition Regulation Supplement (AFFARS) Part 5336, *Construction and Architect-Engineer Contracts*.

4.3.2.1. Notification Requirements for A-E Fees Greater than $1,000,000. When the cost of A-E design services for a project, or a group of related projects, is estimated to exceed $1,000,000, Congress must be notified before award or obligation of funds, in accordance with 10 USC §2807(b). **(T-0).** AF/A4C staffs Congressional notification packages for SAF/IEE approval and delivery to the committees. Notification is required for designs over $1,000,000 undertaken by government personnel, and for A-E services and design over $1,000,000 for projects that are Congressional inserts or directed designs. Congressional notification must be completed (including the 14 day wait period) prior to start of any design, including designs performed by government personnel. **(T-0).** During the notification waiting period, public announcement of the plan to initiate design on a particular military construction project may be made and administrative actions leading to award of the A-E contract may begin, but a design contract may not be awarded.

4.3.2.2. When a large project or several projects for the same functional purpose with total cost of architectural and engineering of $1,000,000 or more are undertaken, Congressional notification is required prior to the start of design for any portion of the undertaking, even though the project design may be subdivided into several A-E contracts or a combination of A-E contracts and design performed in-house by government personnel. **(T-0).** Notification is required even though the design costs for individual portions may be less than the $1,000,000 reporting threshold specified by law. **(T-0).**

4.3.2.3. Section 2808 of the FY19 National Defense Authorization Act provides authority to use RDT&E appropriations for A-E Services and Contract Design to support the Defense Laboratory Modernization Program (Congress authorized the Defense Laboratory Modernization Program in the Public Law 114-92, *National Defense Authorization Act for Fiscal Year 2016*.) This authorizes use of RDT&E appropriations for A-E Services and Contract Design requires Congressional notification when the total A-E cost exceeds $1,000,000. **(T-0).**

4.3.2.4. Planning and Design funds expended by AFCEC, USACE and NAVFAC to award and administer A-E contracts are separate from the actual design services and do not count toward the 10 USC § 2807 threshold. All other costs funded with planning and design funds apply to the threshold. For a design-build contract, the portion of the design completed by the construction contractor after contract award does not count toward the 10 USC § 2807 threshold, since post-award design is paid for with funds appropriated for construction rather than planning and design funds. However, preparation of a Request for Proposal for a design-build contract is considered A-E services and is subject to the 10 USC § 2807 notification requirement.

4.3.2.5. The level of effort authorized by a planning or design instruction (3%, 15%, 35%, and 100%) has no bearing on the Congressional notification requirement. If costs of A-E services are expected to exceed $1,000,000 at any stage of design, Congressional notification is required.

4.3.2.6. For projects with estimated design costs near $1,000,000 where there is uncertainty about whether the project might exceed $1,000,000, estimate conservatively and favor initiating a 10 USC § 2807 notification. If no notification has been made, design is underway, and costs are projected to exceed $1,000,000, notify AFCEC/CP and request further guidance. **(T-3).**

4.3.3. A-E Selection and Services. A-E services are described below:

4.3.3.1. Design Phase (Title I). These services relate to preparing a specific construction project design prior to construction contract award. Services consist of conducting field surveys; conducting site investigations and studies to obtain design data; and preparing design analyses, technical calculations, contract plans, specifications, and cost estimates.

4.3.3.2. Construction Phase (Title II) and Supervision, Inspection and Overhead (SIOH).

4.3.3.2.1. Title II services consist of construction-related observation, inspection, and documentation of progress. Title II services may be provided by the A-E design firm or other entities during the construction project.

4.3.3.2.2. SIOH pays for contract administration, project management, and general overhead costs of the construction agent (typically USACE or NAVFAC). SIOH is a funded cost and must be included in the project estimate for purposes of determining approval thresholds. **(T-0)**. SIOH can be used to fund Title II services which may include construction inspections performed by A-E firms and technical interpretation of proposed contract changes (such as change orders or VE change proposals).

4.3.3.3. Other A-E Services. These services are design and construction-related services not connected with a specific construction project. Other A-E Services are paid for with planning and design funds. Services may include development of IDPs; district plans; other planning products per Federal Acquisition Regulation (FAR) Subpart 36.6, *Architect-Engineer Services*; design criteria; fact finding studies; surveys; investigations; and the performance of environmental projects involving prevention, compliance, and restoration when the services of registered architects or engineers are required. Services that do not need to be performed by a registered engineer or architect (such as providing design and construction equipment or computer programs) are excluded from Other A-E Services.

4.3.3.4. Contract Opportunities. The Contract Opportunities (Formerly Federal Business Opportunities) announcement is a key document in the A-E selection process. It identifies proposed, specific contract actions. Public announcements for A-E services will reflect the minimum needs of the government, not arbitrarily restrict eligible firms, and describe the work required and selection criteria in sufficient detail to facilitate a meaningful selection of the most highly qualified firm. **(T-0).** In the case of indefinite delivery, indefinite quantity (IDIQ) contracts, the Contract Opportunities synopsis identifies contract requirements based on projected, yet uncertain requirements.

4.3.3.5. A-E Slate Selection Approval. DFARS Subpart 236.6 outlines approval authority for A-E slate selection.

4.3.3.6. A-E Approval Authority. For all A-E services (Title I, Title II, IDPs, Other Services, and IDIQs), the Base Civil Engineer should provide slate selection approval authority for services exceeding $1,000,000 per contract. For AFCEC managed contracts, AFCEC/CF is the slate selection approval authority for services exceeding $1,000,000 per contract.

4.3.3.7. Cost-Plus-Fixed-Fee Contracts. The Secretary of Defense (or designee) must approve the use of cost-plus-fixed-fee contracts funded by military construction appropriations, when construction is estimated to exceed $25,000 and will be performed within the continental United States (except Alaska). **(T-0).** Refer to DFARS, Subpart 216.306, *Cost-plus-fixed-fee contracts*, for further guidance

4.3.4. Thirty-five Percent Design. Air Force policy states to be at 35% design a project must be sufficiently developed to support a Class 3 cost estimate as defined by **Table 3** in Association for the Advancement of Cost Engineering International RP 56R-08. **(T-1).** All applicable technical deliverables designated as Started/Preliminary in the Class 3 column of **Table 3** of the Association for the Advancement of Cost Engineering International RP 56R-08, must be Preliminary. **(T-0).** Preliminary is defined in RP 56R-08.

4.4. Congressional Authorization and Appropriations of MILCON Program.

4.4.1. Expiration of Authorizations and Appropriations.

4.4.1.1. Most MILCON projects are five-year authorizations, the year of authorization plus four fiscal years (for example, a project authorized in fiscal year 2020 expires at the end of fiscal year 2024). Duration of authorization may vary for projects authorized under additional appropriations for overseas contingency operations.

4.4.1.2. Partial awards (intended to keep an authorization from expiring) must involve construction placement rather than the purchase of government-furnished material or equipment and must include a significant portion (greater than 50%) of the product work. **(T-1).**

4.4.1.3. MILCON appropriations are generally available for obligation for five fiscal years. Projects should be awarded in the year of appropriation to the maximum extent possible, although appropriated MILCON funds may remain available for obligation beyond the year of appropriation as specified in appropriations acts. Award in the year of appropriation does not change timeline to expense obligated funds. MILCON funds are available for a maximum of ten years: five years before the appropriation expires and an additional five years for expenditure after funds expire. See **Chapter 6**, *Expired and Cancelled Appropriations* in AFMAN 65-605 Volume 1 for use of expired and cancelled funds.

4.4.2. Cost, Scope and Schedule Control.

4.4.2.1. The *Program Management Plan for Air Force MILCON Execution*, "Management Controls", summarizes and updates the controls in place to manage the MILCON execution program. MILCON program managers at all levels should be familiar with these controls in order to recognize situations requiring Congressional notification and to understand how and when to initiate the notification process. Use the tables in the *Program Management Plan for Air Force MILCON Execution* as an initial source for taking appropriate MILCON execution actions.

4.4.2.2. Authorized Cost and Scope Variations. Congress approves each MILCON project at a specific authorized and appropriated cost and scope. 10 USC § 2853, *Authorized cost and scope of work variations*, establishes acceptable ranges of cost and scope variations from the authorized and appropriated amounts. Depending on the degree of cost and scope decrease or increase, Secretariat approval Congressional notification may be required. Scope variations shall be measured against the scope of distinct facilities represented in Block 9 of the DD Form 1391 authorized by Congress. **(T-0).** Scope variation is expressed as a percentage for each distinct facility. **(T-0).** AF/A4C staffs Congressional notification packages for SAF/IEE approval and delivery to the committees. Office of Assistant Secretary Defense (Sustainment) shall coordinate on all 10 USC § 2853 Congressional notification packages prior to submittal to Congress. **(T-0).** For ANG projects, the Cost and Scope discussions will be coordinated with NGB/A4. **(T-1).**

4.4.2.2.1. Cost and Scope Decrease. 10 USC § 2853 authorizes cost decrease of not more than 25% of the amount appropriated or 200% of the minor construction project ceiling, whichever is less, and scope decrease of not more than 25 percent of the amount specified in Block 9 of the DD Form 1391 provided to Congress with the President's Budget, provided the result is a complete and usable project that fully meets the mission requirement stated in the DD Form 1391. Cost and/or scope decreases exceeding these limits require approval by the Service Secretary (or designee, typically SAF/IEE) and Congressional notification. **(T-0).**

4.4.2.2.2. Scope Increase (up to 10%). 10 USC § 2853 authorizes scope increases of not more than 10 percent of the amount specified in the DD Form 1391 provided to Congress, provided the Service Secretary notifies the Congressional Defense Committees in writing. In accordance with OSD policy, scope increases up to 10 percent may be approved only if necessary due to changed facility planning factors, changed technology and related design criteria, unforeseen site conditions, or finalized boundary surveys. Scope increases up to 10 percent are not authorized to account for increased or changed functional requirements. **(T-0).**

4.4.2.2.3. Scope Increase (over 10%). Scope increases exceeding 10 percent of the original authorization may sometimes be necessary. Potential circumstances include (but are not limited to) changed project location (different site or different installation), substantial unforeseen mission growth requiring more than a 10 percent increase in size, or additional functional areas. Scope increases exceeding 10 percent are accomplished via special authorization language included in Division B of the next year's National Defense Authorization Act (NDAA). AFCEC/CF should identify projects requiring Division B submissions and forward to AF/A4CF for inclusion in the next NDAA. The modified scope must be authorized prior to project award. **(T-0).** Scope increases up to 10 percent may be accomplished at any time throughout the fiscal year using the notification process described in **paragraph 4.4.2.2.1** Scope modifications exceeding 10 percent will likely result in substantial project delays, since the modification may only be approved through special authorization language in a subsequent NDAA.

4.4.2.2.4. Cost Increase. 10 USC § 2853 requires Secretariat approval and Congressional notification of cost increases exceeding 25 percent of the appropriated amount or 200 percent of the unspecified minor construction project ceiling specified in 10 USC § 2805(a), *Unspecified minor construction* , whichever is less. Cost increases must be required for the sole purpose of meeting unusual variations in cost that could not have been reasonably anticipated at the time Congress authorized the project. **(T-0).** Cost increase notifications are separate actions from reprogramming requests. Congress must be notified in accordance with 10 USC § 2853 including mandatory waiting periods, before a reprogramming request package is submitted to OSD. **(T-0).** If sufficient funds are not available for reprogramming and a contract can be awarded at reduced scope within available funding that provides, in aggregate, usable facilities, do not decrease scope. Process a cost increase notification as required, contract at the reduced scope, and pursue additional funding to complete the remaining scope via subsequent contract actions. **(T-0).**

4.4.2.2.5. Cost Increase Congressional Reports. In addition to the notification described above, 10 USC § 2853 requires a report for military construction projects with an authorized cost greater than $40 million and a cost increase of more than 25 percent. The report is due to the appropriate committees of congress no later than 180 days after the 10 USC § 2853 Congressional notification **(T-0).** AFCEC/CF prepares the report for signature by SAF/IEE and the construction agent (Deputy Commander of the USACE, Commander of NAVFAC, Director of AFCEC, or the responsible United States Property and Fiscal Officer of the National Guard). **(T-0).** Draft reports are submitted to Office of Assistant Secretary Defense (Sustainment) no less than five business days prior to submission. **(T-0).** The report includes the following items; description of the specific reasons for the cost increase and the specific organizations and individuals responsible, description of ongoing or completed proceeding or investigation into the responsible party for the cost increase, any proceeding or investigation that resulted in judicial or administrative action, summary of changes required to the organizational structure, project management and oversight practices, policy, or authorities of a government organization involved as a result of problems identified and lessons learned. **(T-0).**

4.4.2.2.6. Foreign Currency Authorization Thresholds. For the purpose of evaluating whether a cost variation is within the range allowed by 10 USC § 2853 (currently 25% of the amount appropriated or $12 million, whichever is less), all costs using local currency should be converted to dollars using the exchange rate shown on the DD Form 1391 for the project. In the case of an incrementally funded project, the exchange rate for the authorization year is used. These converted costs are added to any project costs that are priced in dollars to determine the total project cost. The total project cost is then evaluated against the amounts authorized and appropriated for the project using the *ASD-EIE 10 USC 2853 and 10 USC 18233a Cost Variation Worksheet_v2 (Final)*worksheet. The exchange rate shown on the DD Form 1391 for the project being awarded, not the DD Form 1391 for the funding source project(s), is always used for this calculation without regard to the year of appropriation of the funds that will be applied to the project.

4.4.2.3. Reprogramming MILCON Appropriations. Initiate reprogramming actions in accordance with guidance outlined in the *Program Management Plan for Air Force MILCON Execution* and annual MILCON Appropriation language. **(T-0).** For reprogramming requests exceeding AFCEC's approval authority, AFCEC/CF, in coordination with AFCEC/CP, shall prepare all documentation and submit the request to AF/A4CF for further action**. (T-2).** For ANG projects, reprogramming discussions will be coordinated with NGB/A4. **(T-1).**

4.4.2.3.1. MILCON funds are appropriated via the annual Military Construction-Veterans Affairs appropriations bill, separately from all other military programs funded by the annual Defense appropriations bill. As a result, there is no transfer authority to reprogram non-MILCON funds for MILCON requirements. All MILCON reprogramming requests must be sourced from savings found within the MILCON program ("bid savings"), or cancellation of authorized and appropriated MILCON projects. **(T-0).**

4.4.2.3.2. After approval by SAF/IEE, reprogramming requests are forwarded to OUSD(C) for coordination with OMB. After OMB reviews and OUSD(C) approves, OUSD(C) submits a DoD-wide reprogramming request to the House and Senate Appropriations committees.

4.4.2.3.3. Funding Changes. Funding changes with expired funds involve special rules. See **Chapter 6**, *Expired and Cancelled Appropriations* in AFMAN 65-605 Volume 1 for further clarification on use of expired funds.

4.4.2.3.4. Foreign Currency Appropriation Thresholds. A process similar to the determination of foreign currency authorization thresholds referenced in **paragraph 4.4.2.2.5** is followed in determining whether prior approval reprogramming is required. Without regard to the year of funds used to award the contract, all costs priced in the local currency should be converted to dollars using the exchange rate on the project DD Form 1391. Any costs priced in dollars are added to the converted cost and the resultant total is compared to the reprogramming base. If the resultant cost exceeds the reprogramming base by 25% or $2 million, whichever is less, prior approval is required before reprogramming.

4.4.3. Funding and Project Management Guidance for Air Force Services NAF Projects. AFCEC/CF has technical authority for design and construction of NAF projects and administers the AFCEC Change Order Management Plan. The AFSVA is the office of primary responsibility for administering and managing Air Force central non-appropriated funds and approves funding for all change order requests prior to award contract modification. Refer to AFI 32-1020 and AFI 34-205 for additional guidance.

4.4.4. Expedited Construction Project. The use of MILCON funds (excluding Planning and Design funds) to absorb extra costs of expediting a project is authorized under certain conditions described in 10 USC § 2858, *Limitation on the use of funds for expediting a construction project*.

4.4.5. Construction At or Near a Contaminated Site. The Defense Environmental Restoration Program (DERP) is a prioritized environmental restoration program based on risk to health, including safety, and the environment. To the extent that a construction project (MILCON or non-MILCON) generates actions to address contamination, or a need to change DERP-generated timing actions to address contamination, the costs of such actions are not ERA-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity. **(T-0).**

4.4.6. Annual Report on Schedule Delays. 10 USC § 2851(d) , , requires submission of an annual report listing MILCON and Military Family Housing construction projects delayed (as of the end of the most recent fiscal year) more than one year beyond the completion date proposed at contract award. AFCEC/CF must submit this report to AF/A4CF no later than 1 February each year, for inclusion in the Defense-wide report submitted annually to the House and Senate Armed Services Committees. **(T-0).**

4.5. Unspecified Minor Construction.

4.5.1. Project Re-Approval. Re-approval of projects under 10 USC § 2805 Unspecified Minor Construction or 10 USC Chapter 1803 is required when either 1) the current working estimate at project award is 125% or more of the estimated project cost stated in the SAF/IEE approval memorandum or 2) the current working estimate at project award is 90% or more of the applicable project dollar limitation stated in the SAF/IEE approval memorandum.

4.5.2. Limitations on Use of Operations and Maintenance Funds. When Operation and Maintenance funds are used for an unspecified minor construction project, every reasonable effort must be made to ensure the cost remains below the dollar amount specified under 10 USC § 2805 (c) or 10 USC Chapter 1803, as adjusted for the area cost factor when applicable, while still providing a complete and usable facility. **(T-0).** If it is not possible to remain under said dollar amount, work must be stopped and SAF/IEE approval of a MILCON funded project sought. **(T-0).** If the MILCON-funded project is approved, the Operations and Maintenance account must be reimbursed for all costs incurred. **(T-0).**

4.5.3. MILCON-Funded Project Re-Approval. For MILCON-funded unspecified minor construction, SAF/IEE re-approval must be obtained for any project where the current working estimate increases to 115% or more of the current working estimate at the time of contract award. **(T-0).** In no event, though, can the cost be increased above the cost limitation of 10 USC § 2805 (a) (2), as adjusted for the area cost factor when applicable. Every reasonable effort should be made to provide a complete and usable facility within said cost limitation. If a complete and usable facility cannot be provided within the cost limitation all work on the project must be stopped. **(T-0).** The only path to complete such a project is to obtain approval of a MILCON project.

Chapter 5

CONSTRUCTION MANAGEMENT.

5.1. Scope. This chapter defines the quality assurance roles and responsibilities of the construction management team, and discusses several subjects related to construction of Air Force MILCON projects.

5.2. Construction Authorization. For projects authorized by Congress, the authorization in a NDAA satisfies the requirement for authorization while appropriations in the annual MILCON/Veterans Affairs and Related Agencies Appropriation Act makes funding available to the project. For Unspecified Minor Military Construction, AFCEC/CP must provide authorization and establish availability for funding prior to proceeding with construction. **(T-0).** AFCEC/CP must ensure 10 USC § 2805, Unspecified Minor Construction, notification requirements are met. **(T-0).** For ANG projects executed under Title 10 USC Chapter 1803, the NGB/A4A and NGB/A4O preform the role described for AFCEC/CP in this chapter. Once these requirements are met and in accordance with the *Program Management Plan for Air Force MILCON Execution*, construction authorization should be issued through a field design instruction to the construction manager.

5.3. Construction Execution.

5.3.1. Construction Start.

5.3.1.1. After construction contract award, use construction funds to support Design Agent or A-E, Title II construction and inspection services, and any required A-E design services (engineering and design or post contract award services).

5.3.2. Construction Quality.

5.3.2.1. The Construction Manager (or the Base Civil Engineer, in lieu of a construction manager) and the construction agent share the primary responsibility for delivering the user a quality facility. **(T-1).** The construction manager ensures installation-level specialists in fire protection, safety, environment and health are provided access to the project site during construction and quality evaluation processes. The construction manager ensures appropriate subject matter experts are involved in approving criteria equivalencies and alternatives. The contractor is responsible for inspecting, testing, and documenting those tests and inspections that are required by the contract to control material quality and workmanship. The construction agent has primary responsibility to assure and verify the quality.

5.3.2.2. Federal Acquisition Regulations require government agencies contracting for design and construction services to perform quality assurance prior to acceptance and payment for work. Quality Assurance (QA) oversight can be accomplished by government personnel directly, or by contract support under the direction of government personnel. The contractor is required by the terms of the contract to employ a quality control representative adhering to UFGS Division 01, *General Requirements*. Government personnel (from the construction agent and/or from the Base Civil Engineer office) perform QA oversight responsibilities. **(T-1).** Refer to DoD Contracting Officer's Representative Handbook dated March 22, 2012, for additional information and

requirements for QA and QA Surveillance Plan. A quality assurance surveillance plan is mandatory for contracts, task orders, or delivery orders over the simplified acquisition threshold, including services contracts and construction contracts. **(T-2).**

5.3.3. Red Zone. Red Zone Meetings are required for all MILCON projects. **(T-1).** The Red Zone approach begins with a meeting held at 80 percent of construction completion. At a minimum, participants should include the contractor, construction manager, construction agent representative, Base Civil Engineer, facility user, and other stakeholders, including the communications squadron. At the meeting, participants should discuss, define and achieve consensus on actions necessary to accept real property, support user occupancy, perform financial closeout and document the fiscal closeout of the project in the real property records. Drafting of the DD Form 1354 to be used for acceptance of real property and certification of costs incurred should be initiated before or during the Red Zone meeting.

5.3.4. Commissioning. All new facilities and major renovation projects should include commissioning to the extent practicable. Refer to UFGS 01 91 00.15 *Total Building Commissioning*, for additional guidance.

5.3.5. Construction Completion.

5.3.5.1. Construction is considered to be complete when all work has been physically completed and all punch list items have been resolved. Construction completion does not include any additional matters not directly related to the work to be performed such as receipt of contract deliverables, resolution of financial claims, and release of claims, final contractor payment or contract closeout.

5.3.5.2. For work involving multiple contracts, construction is considered to be complete when work for all contracts is complete.

5.3.5.3. Acceptance of real property can occur prior to construction completion. See FAR 52.236-11, *Use and Possession Prior to Completion*, for further information.

5.3.6. Project Closeout. Project closeout includes resolving punch list items, delivery of as-built drawings, and provision of required operations and maintenance training or other project identified deliverables. Additional information can be found in UFC 1-300-08, *Criteria for Transfer and Acceptance of Military Real Property, with Change 2*.

5.3.7. Post-Occupancy Inspections. The post-occupancy evaluation team conducts post-occupancy inspections 9 to 11 months after the contractor completes construction. **(T-3).** The Construction Manager sends items of interest to AFCEC/CF.

Chapter 6

CONSTRUCTION-IN-PROGRESS.

6.1. Scope. Construction-in-Progress (CIP) refers to the financial accounting required to track expenditures associated with design and construction of military construction projects to construct and/or make capital improvements to DoD real property. CIP accounting tracks all design and construction costs, beginning with issuance of a design instruction authorizing design and ending when real property has been placed in service using a completed final DD Form 1354. Additional project scope and costs, such as land acquisition and demolition, are also reported under CIP until the real property is placed in service at which time all costs recorded on the DD-1354 will either be capitalized or expensed. This chapter defines terms and establishes processes required to maintain key supporting documentation for proper financial accounting for military construction projects throughout design and construction.

6.1.1. Background and Authorities. The Air Force accounts for real property on a Balance Sheet, as required by DoDI 7000.14-R Volume 6B Chapter 4, *Balance Sheet*. The Balance Sheet accounts for both the value of real property in design and construction and the valuation of Placed-in-Service real property assets. DoDI 7000.14-R Volume 4 Chapter 24, *Real Property*, describes requirements for valuation of real property assets on the Air Force Balance Sheet. Proper CIP accounting during design and construction supports subsequent valuation of real property assets on the Air Force Balance Sheet.

6.1.2. Applicability. This chapter only applies to military construction projects financed by appropriations made to the Air Force, Air Force Reserve and Air National Guard. Construction-in-progress for projects at Air Force installations financed by other sources will be tracked in accordance with policy and guidance of the sponsoring entities for those projects **(T-3).**

6.2. Construction-in-Progress Costs.

6.2.1. CIP encompasses all costs for design, construction, supervision, inspection and overhead (SIOH) and real property installed equipment, as well as additional project costs necessary for construction such as land acquisition and demolition. CIP costs are recorded in the CIP account based on costs documented in an approved DoD financial system, substantiated by documentation including (but not limited to) invoices for contract payments, labor reports, and funding authorization documents. **(T-0)**. All project costs recorded in the CIP account must be traceable to the "component unique project number" specified on the DD Form 1391 for the project and at least one real property unique identifier for a real property asset identified on the Draft DD Form 1354 for the project. **(T-0)**. Financial accounting for CIP and supporting documentation should identify the funding account(s) (e.g. 3300 for Air Force MILCON) and funding organization (Air Force).

6.2.2. CIP Cost Documentation. Key supporting documents are required to ensure auditability. The construction manager will maintain copies of key supporting documents in the project folder. **(T-0)**. Key supporting documents that must be maintained in the project folder include: all versions of the DD Form 1391 (drafts, revisions, and final copy), all versions of the DD Form 1354; all design instructions, all field design instructions, all

funding authorization documents, and all project cost reports from the construction agent. **(T-2).**

6.3. Design Documentation. CIP accounting begins when design authorization and design funding is provided to the design or construction agent. At that time, the agent should establish a "CIP Account". The identifier for the CIP account should be used for all financial accounting for construction-in-progress for the project. There is only one CIP account for a project even if the project is funded by multiple sources. Supporting documentation includes the design instruction from the DM/CM directing the DoD design or construction agent to proceed with design, a funding authorization document to provide the funding for design, a draft DD Form 1391 to identify the project and a draft DD Form 1354 identifying at least one real property asset identified in block 9 of the DD Form 1391. **(T-2).**

6.3.1. Draft DD Form 1391. A draft DD Form 1391, prepared in accordance with the MILCON or FSRM DD-1391 business rules, shall be established prior to the start of design and provided to the DoD construction agent. **(T-0).** The component unique project number appearing on the DD-1391 cannot be changed once design starts unless approved by AF/A4CF. **(T-2).**

6.3.2. Draft DD Form 1354. A draft DD Form 1354, prepared in accordance with MILCON and FSRM DD Form1391 Business Rules, will be provided with the draft DD Form 1391 sent to the DoD design or construction agent prior to the start of design. **(T-3).** The project number on the draft DD Form 1354 must match the project number on the draft DD Form 1391 and a real property unique identifier is required for at least one real property asset in block 9 of the draft DD Form 1391. **(T-2).** For project approval requests, a signed DD1391 is not required in the preliminary review stage. DD1391's are to include location plan; site plan; floodplain map; single line drawing; certifications; and cost amounts.

6.4. Construction Documentation.

6.4.1. CIP accounting continues throughout construction. The DM/CM must issue a design instruction to the construction agent authorizing award of the primary construction contract. **(T-3).** The DM/CM must also maintain copies of funding authorization documents, the as-enacted DD Form 1391, and the draft DD Form 1354. **(T-2).**

6.4.2. As-Enacted DD Form 1391. This is the DD Form 1391 submitted to Congress in the justification book supporting the President's Budget. The project number on this DD Form 1391 must match the project number assigned to the CIP account. **(T-0).** If they do not match, then the project number for the CIP account must be changed to match the As-Enacted DD Form 1391. **(T-2).** SAF/FM publishes justification books submitted annually with the President's Budget, which are available at **https://www.saffm.hq.af.mil/FM-Resources/Budget/**.

6.5. Acceptance of Real Property. Real property will be placed in service using a DD Form 1354 (interim or final) provided by the construction agent and prepared in accordance with UFC 1-300-08 **(T-2).**

6.6. Certification of Costs Incurred. When all project costs are known, the construction agent will provide a final DD Form 1354 prepared in accordance with guidance provided in UFC 1-300-08 **(T-2).** The construction manager shall ensure the construction agent provides a project cost report identifying all design and construction costs by funding organization and account, and that these costs are relieved from the CIP account. **(T-2).** The total balance remaining in the CIP account must be zero before completion of project closeout. **(T-2).**

6.7. Project Cancellation. All CIP balances in the CIP account must be relieved from the CIP account by the construction agent before project cancellation can be completed. **(T-2).** A project cost report should be provided by the construction agent identifying all design and construction costs by funding organization and account recorded in the CIP account.

6.8. Reporting and Oversight. AFCEC/CF shall ensure construction agents provide a monthly consolidated project cost report for all ongoing Air Force military construction projects. (T-2). All financial reporting for costs recorded in a CIP account will include the component unique project number for the project specified on the DD-1391 and each real property unique identifier for which costs have been recorded in the financial accounting system. **(T-3).** Financially complete or cancelled projects should appear on this report for at least one quarter after financial closeout or cancellation. This report is used quarterly to establish financial traceability to the trial balances reported in the DoD Reporting System and the Air Force Balance Sheet.

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DCS/Logistics, Engineering & Force Protection

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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32 CFR § *Asbestos* 989.14, *Environmental Assessment*

10 CFR Part 436, *Federal Energy Management and Planning Programs*

14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*

29 CFR Part 1910, *Occupational Safety and Health Standards*

29 CFR Part 1926, *Safety and Health Regulations for Construction*

32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*

40 CFR Part 61 *Subpart M, National Emission Standard for Asbestos*

40 CFR Part 745, *Lead-Based Paint Poisoning Prevention in Certain Residential Structures*

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40 CFR Part 82, *Protection of Stratospheric Ozone*

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10 USC Chapter 1803, *Facilities for Reserve Components*

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10 USC § 2855, *Law applicable to contracts for architectural and engineering services and construction design*

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Abbreviations and Acronyms

A-E—Architect-Engineer

AF—Air Force

AFCEC—Air Force Civil Engineer Center

AFFARS—Air Force Federal Acquisition Regulation Supplement

AFI—Air Force Instruction

AFIMSC—Air Force Installation Mission Support Center

AFMAN—Air Force Manual

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFRCH—Air Force Reserve Command Handbook

ANG—Air National Guard

ANGI—Air National Guard Instruction

CIP—Construction-In-Progress

CFR—Code of Federal Regulations

DFARS—Defense Federal Acquisition Regulation Supplement

DM/CM—Design Manager/Construction Manager

DoD—Department of Defense

DoDD—Department of Defense Directive

DoDI—Department of Defense Instruction

DoDM—Department of Defense Manual

EISA—Energy Independence Security Act

ETL—Engineering Technical Letter

FAA—Federal Aviation Administration

FBO—Federal Business Opportunities

IDIQ—Indefinite Delivery/Indefinite Quantity

IDP—Installation Development Plan

MAJCOM—Major Command

MIL-STD—Military Standard

MILCON—Military Construction

NAF—Non-appropriated Funds

NDAA—National Defense Authorization Act

NEPA—National Environmental Policy Act

NGB—National Guard Bureau

OMB—Office of Management and Budget

OSHA—Occupational Safety and Health Administration

PMP—Project Management Plan

QA—Quality Assurance

RDT&E—Research, Development Test and Evaluation

SIOH—Supervision, Inspection, and Overhead

UFC—Unified Facilities Criteria

UFGS—Unified Facilities Guide Specifications

USC—United States Code

VE—Value Engineering

WBDG—Whole Building Design Guide

Terms

A-E Slate—A ranked list of A-E finalists under consideration for contract.

Accountable Entity—The Military Department having jurisdiction over the real property in accordance with 10 USC § 2682, *Facilities for Defense Agencies*, is referred to as the "accountable entity" and is required to record the real property asset in their Accountable Property System of Record (APSR). The accountable entity may or may not be the entity that reports the real property on its financial statements.

Design Instruction (DI)—A formal communication between designated authorizing official(s) responsible for the planning, programming, and/or execution of a project and the organization responsible for project management (DM and/or CM). Design instructions are management controls on project execution. These controls include, but are not limited to, the authorization to

proceed with design, work approval and authority to award. All design instructions are key supporting documents to be included in the project folder.

Deviation—An approved deviation provides authority to deviate from a specific mandatory technical criteria requirement in a UFC document for an indefinite period of time. Deviations are valid for a specific project in a specific facility and are not generic approvals to deviate from criteria. Deviations, per MIL-STD 3007GF are termed as waivers (short-term deviation for a specified, short period of time) and exemption (permanent criteria deviation). Refer to most recent version of MIL-STD 3007G.

District Plan—A district plan is a plan for an identifiable geographic area based on compatible but not solely single uses. A single district may contain administrative, commercial, and residential uses. A base is comprised of adjacent districts (i.e. downtown, midtown, industrial, airfield, train yards, munitions storage, campuses).

Field Design Instruction (Field DI)—A formal communication between the organization responsible for project management (design and/or construction manager) and the organization responsible for technical execution of the project (design and/or construction agent). Field design instructions are management controls on project execution and convey important information to the design and/or construction agent. Field design instructions would include all programming instructions, key supporting documents and other information needed by the design and/or construction agent for project management. All field design instructions are key supporting documents to be included in the project folder

Inspection—The construction agent and contractors' inspection duties include, but are not limited to, such items as checking layout of the construction in the field and safety compliance, and inspecting workmanship and materials to determine conformity with contract documents. They also include reviewing laboratory tests and analyses of materials, completing and submitting field and progress reports, and checking monthly and final estimates as a basis for payment.

Installation Development Plan—The product that provides the installation commander and other decision-makers a condensed picture of an installation's capability to support the mission with its physical assets and delivery systems. It is a general assessment of the installation's infrastructure and attributes for the purpose of gauging development potential.

Plan for Air Force MILCON Execution (*Program Management Plan for Air Force MILCON Execution*)—The purpose of this plan is to provide the contextual framework for the working relationship between Headquarters Air Force = Civil Engineer, Facilities Management Division (A4CF) and the Air Force Civil Engineer Center (AFCEC) for Military Construction (MILCON). This plan applies to all Air Force MILCON where AFCEC is designated as the design manager/construction manager (DM/CM) or DoD construction agent.

Quality Assurance—The construction agent's review of all phases of the design and construction work to ascertain quality or state of work and to determine compliance with plans and specifications and contract provisions.

Red Zone Meeting—A meeting held at the 80 percent construction completion date where participants discuss, define, and achieve consensus on actions necessary to complete construction, support user occupancy, perform financial closeout and document the fiscal closeout of the project in the real property records.

United States—The several States, the District of Columbia, the Commonwealths of Puerto Rico and the Northern Mariana Islands, American Samoa, Guam, Midway and Wake Islands, the U.S. Virgin Islands, any other territory or possession of the United States, and associated navigable waters, contiguous zones, and ocean waters of which the natural resources are under the exclusive management authority of the United States.

Value Engineering—The systematic review by a multi-disciplined team to identify and analyze the most life-cycle cost effective options to reliably accomplish the programmed project intent at the lowest life-cycle cost without sacrificing safety, quality, operations, maintenance, and the environment. The experienced, multi-disciplinary team improves value and economy through the study of alternate design concepts, materials, and methods without compromising the project's functional requirements.