

UNIFIED FACILITIES CRITERIA (UFC)

DoD FACILITIES PRICING GUIDE\2\2/



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**UNIFIED FACILITIES CRITERIA (UFC)
DoD FACILITIES PRICING GUIDE\2\2**

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

OFFICE OF THE DEPUTY UNDER SECRETARY OF DEFENSE FOR
INSTALLATIONS AND ENVIRONMENT

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

Change No.	Date	Location
<u>1</u>	<u>June 2011</u>	Table 2: Revisions to six metric Reference Sizes; Table 4-1: Corrected the spelling of three Locations and corrected MILCON ACF for several locations.
<u>2</u>	<u>July 2012</u>	Change UFC title; Update tables for FY 2012 application
<u>3</u>	<u>September 2012</u>	<u>Replaced Table 3 with revised table.</u>
<u>4</u>	<u>March 2013</u>	<u>Update tables for FY2013 application</u>
<u>5</u>	<u>August 2013</u>	<u>Replaced Table 3</u>
<u>6</u>	<u>May 2014</u>	<u>Update tables for FY2014 application</u>
<u>7</u>	<u>March 2015</u>	<u>Update tables for FY2015 application</u>
<u>8</u>	<u>July 2015</u>	<u>Replaced Tables 2, 3 and 4-1 OCONUS</u>
<u>9</u>	<u>May 2016</u>	<u>Updated all tables for FY2016 application</u>
<u>10</u>	<u>May 2016</u>	<u>Replaced Table 4.1 (Area Cost Factors Outside the U.S) to correct two errors</u>
<u>11</u>	<u>September 2016</u>	<u>Replaced Table 3, 4-1 CONUS and 4-1 OCONUS with revised tables.</u>
<u>12</u>	<u>April 2017</u>	<u>Updated tables for FY2017 application</u>
<u>13</u>	<u>July 2017</u>	<u>Updated Table 3 and supporting documentation</u>

FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with [USD\(AT&L\) Memorandum](#) dated 29 May 2002. UFC will be used for all DoD projects and work for other customers where appropriate. All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA.) Therefore, the acquisition team must ensure compliance with the more stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable.

UFC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Center for Engineering and the Environment (AFCEE) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content of UFC is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: [Criteria Change Request \(CCR\)](#). The form is also accessible from the Internet sites listed below.

UFC are effective upon issuance and are distributed only in electronic media from the following source:

- Whole Building Design Guide web site <http://dod.wbdg.org/>.

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



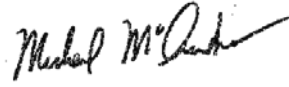
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UNIFIED FACILITIES CRITERIA (UFC)
REVISION SUMMARY SHEET

Subject: UFC 3-701-01
Cancels: UFC 3-701-01, dated June 2010

Description of revision: This revision:

Updates all UFC tables (listed below) for FY ~~12~~2017/~~12~~ using pricing data available in October ~~12~~2016/~~12~~

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CHAPTER 1 INTRODUCTION

1-1 SCOPE

The DoD Facilities Pricing Guide supports a spectrum of facility planning, investment, and analysis needs. This version of the Guide reflects updated cost and pricing data for FY \12\2017/\12/ intended to support preparation of the DoD budget for FY \12\2019/\12/. It includes reference information organized into three chapters:

1-1.1 Chapter 2: Unit Costs for Military Construction Projects

Chapter 2 provides facility unit cost data for selected DoD facility types in support of preparing Military Construction (MILCON) project documentation (DD Forms 1391) and other project-level estimates in accordance with UFC \2\3-730-01/\2/, "Programming Cost Estimates for Military Construction."

1-1.2 Chapter 3: Unit Costs for DoD Facilities Cost Models

Chapter 3 provides unit costs in support of DoD facilities cost models. These unit costs are based upon the reported average DoD facility size or an established benchmark size, as annotated for each Facility Analysis Category (FAC) in the DoD Real Property Classification System (published separately). These unit costs are intended for macro-level analysis and planning rather than individual facilities or projects.

1-1.3 Chapter 4: Cost Adjustment Factors

Chapter 4 provides cost adjustment factors for location and future price escalation that are applicable to the base unit costs in both chapters 2 and 3.

1-2 DATA TABLES

\2\The data tables embedded within this UFC are available in an Excel format by clicking the paperclip icon (View File Attachments) at the bottom left of the window and selecting the attached Excel file.\2/

For the convenience of UFC users, all data tables in this UFC are available as part of the supporting documentation download file, \13\FY17 Sustainment Unit Cost Documentation, accompanying this UFC on the Whole Building Design Guide (WBDG) web site:

http://www.wbdg.org/FFC/DOD/UFC/FY17_Sustainment_Unit_Cost_Documentation.zip
.\13/

1-3 PROPONENT

The Office of the Deputy Under Secretary of Defense for Installations and Environment is the proponent for the Facilities Pricing Guide. Recommendations from users toward improving the usefulness of this reference are welcome.

ARCHIVED

CHAPTER 2 UNIT COSTS FOR MILITARY CONSTRUCTION PROJECTS

2-1 OVERVIEW

The facility unit costs in this chapter apply to preparation of programming-level cost estimates for constructing military facilities in accordance with the methodology described in UFC 3-730-01/2/. As explained in UFC 3-730-01/2/, these unit costs are not to limit more detailed cost estimates. For the convenience of UFC users, all data tables in this UFC are available as part of the supporting documentation download file, FY17 Sustainment Unit Cost Documentation, accompanying this UFC on the WBDG web site:

http://www.wbdg.org/FFC/DOD/UFC/FY17_Sustainment_Unit_Cost_Documentation.zip
/13/

2-2 FACILITY UNIT COST TABLE

Table 2 provides facility unit costs for various DoD facility types in dollars per square meter (\$/m²) and equivalent English unit cost data in dollars per square foot (\$/SF) as of October 2016/12/. The listed facility types represent only those facilities most frequently constructed by the Military Services/4/, and the application of a facility unit cost may not be directly applicable for those facilities with unique requirements. See UFC 3-730-01 for additional guidance on facility unit costs and their application./4/.

The unit costs in Table 2 are average unit costs/4/ for new construction /4/ based on no less than 3 project awards per building type occurring since September 2013/12/ for Army, Navy, Air Force, and (for medical projects) Defense Health Agency facilities as entered into the HII unit cost database prior to 1 Nov 2016/12/. Facility Additions which are less than 25% of the Reference Size of the listed facility type, and projects /4/outside of the continental United States (CONUS), are included only for Family Housing and DOD Schools. For additional information regarding how the facility unit costs are determined, refer to paragraph 2-3, Guidance Unit Cost Development.

2-3 GUIDANCE UNIT COST (GUC) DEVELOPMENT METHODOLOGY

2-3.1 Data Source

All reliable HII project records, after excluding records for reasons stated in paragraph 2-2. In general, all project records for the CONUS and projects from Alaska and Hawaii are included.

Facility level information from all three Services projects entered into HII database for comparable service category codes (CATCODES). Normalized project unit costs were statistically analyzed to eliminate outliers before calculating the guidance unit price (GUC).

2-3.2 \12\Business Rules

The business rules are reviewed annually prior to updating Table 2 Facility Unit Costs for Military construction. The business rules include the following components.

- a. Tri-Service CATCODES Cross walk table groups like service CATCODES to a common OSD Code. OSD Codes are reported in Table 2.
- b. Formulation of data set: new construction, awarded within the past four fiscal year, projects within the CONUS plus Hawaii and Alaska except where noted otherwise in Table 2, exclude projects for extreme variation from the mean (50%), and minimum of three projects.
- c. Exclusion of inappropriate data for cause.
- d. Data normalization/12/

2-3.3 Data Normalization

Each facility-specific data are normalized to the National Average Area Cost Factor (ACF=1) and number of bidders, and escalated to October of the year of interest, before unit costs are averaged.

- a. Escalation: DoD Selling Price Index (DoD-SPI), which is an average of three commonly accepted national construction price escalation indices, is utilized to escalate actual project award cost data to October of \12\2016/12/for this UFC.
- b. Number of Bidders: Based on actual bid data for the three Services.

\12\

Table 2: Facility Unit Costs for Military Construction



Table 2

/12/

General: \12\Unit costs are for primary facilities only. Various qualifications and restrictions apply to the unit costs in Table 2. These are specified in the notes below.

The facility unit costs include the following:

- a. minimum antiterrorism design features (reference UFC 4-010-01, "DoD Minimum Antiterrorism Standards for Buildings") inside the building meeting Table B-1 standoff distance requirements
- b. an average sales tax \4\on building materials/4/
- c. building information system costs (e.g., conduits, racks, trays, telecommunication rooms) without any specialized communications requirements

- d. installed (built-in) building equipment and furnishings normally funded with MILCON funds.
- e. Energy Management Control system (EMCS) connections
- f. Intrusion Detection System (IDS) infrastructure, including conduits, racks, and trays
- g. Sustainable Design features for criteria in effect from September, \12\2013\12/ thru September, \12\2016\12/.
- h. \4\Progressive Collapse premiums for the following specific facility types: Inpatient Hospital/MED Center, Primary Care Clinic (Attached), Major Command Headquarters Building, Barracks/Dormitory, and Recruit Open Bay (Barracks).
- i. standard foundation systems (e.g. strip/spread footings, thickened edge slab for slab on grade, etc.)/4/

The unit costs do not include the following:**/2/**

- a. \2\gross receipt taxes or gross excise taxes. (Arizona, Mississippi, Washington, New Mexico, Delaware, Hawaii, Illinois, Ohio, Pennsylvania, Texas, Michigan, Kentucky, and the District of Columbia have varying amounts of gross receipt taxes in lieu of a sales tax.)“Acts of God” or unusual market conditions**/2/**
- b. supporting facility costs
- c. equipment acquired with other fund sources, including pre-wired workstations or furnishing systems, intrusion detection systems
- d. sustainable design and construction features mandated since September, \12\2016\12/; these will be estimated separately in accordance with component guidelines and documented on DD form 1391 per DoD Instruction 4170.11, *Installation Energy Management*, and applicable component guidance
- e. special foundations (e.g. prestressed concrete piles, caissons, etc.), intrusion detection system installation, base exterior architectural preservation guidelines
- f. enhanced Anti-Terrorism (AT) standards (exceeding the minimum in UFC 4-010-01, or when minimum standoff distances [Table B-1] are not achieved)construction contingency allowances
- g. supervision, inspection, and overhead (SIOH)
- h. design costs (design-build contracts)
- i. construction cost growth resulting from user changes, unforeseen site conditions, or contract document errors and omissions, unusual market conditions (for example material shortages, labor shortages, or Acts of God)

4\Other Cost Considerations: /4/

- a. Medical facilities: Unit costs include category A and category B equipment, but do not include category E and category F equipment costs.
- b. Barracks and Unaccompanied Officers Quarters: Unit costs do not include free-standing kitchen equipment. In addition to using the size adjustment factors, use the project size adjustment factors in UFC 1213-730-01/2/.
- c. Child Development Centers: Unit costs do not include free-standing food service equipment or playground area and equipment.
- d. Family housing: Unit costs are based upon gross area and include sprinkler systems or fire-rated construction. Unit costs include post-award design costs.
- e. Reserve facilities other than reserve centers: Use the unit cost of the appropriate facility type.
- f. Costs are independent of the acquisition strategy and are not specific to any single construction type. 121Reference or Normalized size is the average size of the actual project awards for a facility type./2/
- g. 4\Applicable adjustments for gross receipt or excise taxes, Acts of God, and unusual market conditions shall be documented and added to the cost estimate/4/

CHAPTER 3 UNIT COSTS FOR DOD FACILITIES COST MODELS

3-1 OVERVIEW

This chapter describes the unit costs and related factors used in support of DoD facilities cost models. These are intended for macro-level analysis and planning and should not be used for individual facilities or project estimates.

Unit costs and related factors are associated with Facility Analysis Categories (FACs) represented by a 4-digit code in the DoD Real Property Classification System (RPCS), a hierarchical scheme of real property types and functions that serves as the framework for identifying, categorizing, and modeling the department's inventory of land and facilities. FACs are common across the department and suitable for department-wide applications. For each FAC, Table 3 identifies the associated unit cost to be used in DoD facilities cost models and metrics.

Whenever possible, unit costs and factors have been based upon approved government or commercial benchmarks. Detailed supporting data for unit costs is available as part of the FY17 Sustainment Unit Cost Documentation, accompanying this UFC on the WBDG web site:

http://www.wbdg.org/FFC/DOD/UFC/FY17_Sustainment_Unit_Cost_Documentation.zip

3-2 REPLACEMENT UNIT COSTS

3-2.1 Definition

Replacement provides a complete and useable facility, built to today's standards, capable of serving the purpose of the original facility. Replacement costs include construction of standard foundations, all interior and exterior walls and doors, the roof, utilities out to the 5-foot line, all built-in plumbing and lighting fixtures, security and fire protection systems, electrical distribution, wall and floor coverings, heating and air conditioning systems, and elevators. Not included are project costs such as design, supporting facility costs, special foundations, equipment acquired with other funding sources (e.g. mission-funded components), contingency costs, or supervision, inspection, and overhead (SIOH). Also not included are items generally considered personal property such as computer systems, and furniture. See "Revising Unit Costs" at the end of this chapter for guidance on requesting changes to published Replacement Unit Costs in Table 3.

3-2.2 Use of Replacement Unit Costs

Replacement unit costs form the basis of calculating plant replacement value in a consistent manner across DoD. Plant replacement value represents the cost to design and construct a notional facility to current standards to replace an existing facility at the same location. The standard DoD formula for calculating plant replacement value is:

$\text{Plant Replacement Value} = \text{Facility Quantity} \times \text{Replacement Unit Cost} \times \text{Area Cost Factor}^1 \times \text{Historical Records Adjustment}^2 \times \text{Planning and Design Factor}^3 \times \text{Supervision Inspection and Overhead Factor}^4 \times \text{Contingency factor}^5$

Replacement unit costs can also support large-scale program-level estimates for re-stationing plans with the addition of allowance for site preparation, earthwork, landscaping, and related factors. Replacement unit costs should not be used for individual project estimates.

3-3 SUSTAINMENT UNIT COSTS

3-3.1 Definition

Sustainment provides for maintenance and repair activities necessary to keep a typical inventory of facilities in good working order over their expected service life. It includes:

- regularly scheduled adjustments and inspections, including maintenance inspections (fire sprinkler heads, HVAC systems) and regulatory inspections (elevators, bridges)
- preventive maintenance tasks
- emergency response and service calls for minor repairs
- major repair or replacement of facility components (usually accomplished by contract) that are expected to occur periodically throughout the facility service life

Sustainment includes regular roof replacement, refinishing wall surfaces, repairing and replacing electrical, heating, and cooling systems, replacing tile and carpeting, and similar types of work.⁶ It does not include repairing or replacing non-attached equipment or furniture, or building components that typically last more than 50 years (such as foundations and structural members). Sustainment does not include restoration, modernization, environmental compliance, specialized historical preservation,⁷ general facility condition inspections and assessments, planning and design (other than shop drawings), or costs related to acts of God, which are funded elsewhere. Other tasks associated with facilities operations (such as custodial services,

¹ A geographic location adjustment for costs of labor, material, and equipment, published in Chapter 4 for vertical construction.

² An adjustment to account for increased costs for replacement of historical facilities or for construction in a historic district; the current value of the factor is 1.05.

³ A factor to account for the planning and design of a facility; the current value of this factor is 1.09 for all but medical facilities and 1.13 for medical facilities.

⁴ A factor to account for the supervision, inspection, and overhead activities associated with the management of a construction project; the current value of the factor is 1.057 for facilities in the continental US (CONUS), and 1.065 (USACE) or 1.062 (NAVFAC) for facilities outside of the continental US (OCONUS).

⁵ A factor to account for construction contingencies; the current value of the factor is 1.05.

⁶ Facilities Sustainment also generally allows for overhead costs, which include architectural and engineering services.

⁷ Specialized historical preservation costs are those for customized components or materials that are no longer readily available.

grass cutting, landscaping, waste disposal, and the provision of central utilities) are also not included.⁸

3-3.2 Use of Sustainment Unit Costs

Sustainment unit costs represent the annual average sustainment cost for each FAC, and serve as the basis for calculating annual facilities sustainment requirements for DoD using the following formula:

$$\text{Sustainment requirement} = \text{Facility Quantity} \times \text{Sustainment Unit Cost} \times \text{Area Cost Factor}^9 \times \text{Inflation Factor}^{10}$$

The Sustainment Requirement for each qualifying asset in the DoD inventory is aggregated by sustaining organization and sustainment fund type in the Facilities Sustainment Model (FSM), published annually.

3-4 UNIT COST SOURCES

Unit costs for DoD cost models are developed using a variety of sources. These sources fall into the three categories described below, listed in order of preference. The source description and source group for each unit cost are identified in Table 3. Supporting documentation for each unit cost calculation is available in the “Supporting documentation” file download accompanying this UFC document on the Whole Building Design Guide website.

Source 1: Standard, easily-accessible published data that is highly applicable to the FAC. Source 1 is the most desirable due to ease of access, general applicability, and lack of bias. Examples include the DoD Tri-Service Committee on Cost Engineering, Service-specific cost guidance (USACE), commercial cost-estimating guidelines or models (e.g., Marshall & Swift or RSMeans), or other Government-published cost guidance from federal, state, or local government agencies (e.g. Fairfax County (Virginia) Park Authority). Non-DoD source 1 data may require refinement for application in DoD, but is still considered source 1 if it closely matches the design attributes of the FAC.

Source 2: Source 1 data that are applied to facilities with similar but not identical characteristics (e.g., sewage waste treatment facilities and industrial waste treatment facilities). Source 2 also includes unpublished government or trade association cost data, and Component-validated cost/s for non-standard facilities that have no commercial counterparts (e.g. missile launch facilities or military ranges).

Source 3: Unpublished project-specific data derived from Component project documents (e.g. DD Forms 1391) or from calculating costs from reported Plant Replacement value and inventory, or derived from using a ratio of sustainment to

⁸ Facilities Sustainment Program Element (PE) definition.

⁹ A geographic location adjustment for costs of labor, material, and equipment.

¹⁰ The value(s) representing future-year inflation/escalation for operation and maintenance accounts, published in Table 4-4.

construction from a similar Source-1 Facilities Analysis Category (e.g. FAC 2115, Aircraft Maintenance Hangar, Depot derived from FAC 2111, Aircraft Maintenance Hangar).

3-5 REVISING UNIT COSTS

Users of this UFC are encouraged to suggest revisions to the published cost factors, particularly for facilities unique to their mission. Submit proposed changes to the proponent office in accordance with the following guidelines:

- Revised costs should come from an equivalent or superior source
- Revised costs should be easily audited
- Revised costs should be consistent with the functional definitions
- Revised costs should be consistent with the scope of the Facility Analysis Category
- Revised costs should be suitable for application throughout DoD

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Table 3: Unit Costs for DoD Facility Cost Models



Table 3

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\12\Table 3 Legend



Table 3 Legend

/12/

CHAPTER 4 COST ADJUSTMENT FACTORS

4-1 LOCATION ADJUSTMENTS

Table 4-1 provides area cost factors (ACFs) to be used for adjusting “bare” unit costs to location-specific costs for the most common locations. \13\13/

For military construction projects, use the MILCON ACFs with the primary facility unit costs from Chapter 2 or approved Air Force, Army, or Navy MILCON Pricing Guide. For calculating Plant Replacement Value, use the MILCON ACFs with the appropriate replacement unit costs from Chapter 3. For calculating sustainment costs, use the sustainment ACFs with the appropriate sustainment unit costs from Chapter 3.

Do not use the MILCON ACFs to modify parametric cost estimates, detailed quantity-take-offs, unit price book (UPB) line items, commercial cost data, or user-generated unit costs. These cost estimating methods and databases have their own processes and factors for adjusting costs to different locations.

MILCON and sustainment ACFs were developed using the Tri-Service Cost Engineering ACF software program.

In general, the Tri-Service Cost Engineering ACF software program evaluates the local costs for a United States market basket of 8 labor crafts, 17 construction materials, and 4 equipment items. These labor, materials, and equipment (LME) items are representative of the types of products, services, and methods used to construct most military facilities in the United States. Each of the LME costs is normalized and weighted to represent its contribution to the total cost of a typical facility. The normalized LME is then modified by seven matrix factors that cover local conditions affecting construction costs. These matrix factors include weather, seismic, climatic (frost zone, wind loads, and HVAC systems), labor availability, contractor overhead and profit, logistics, and labor productivity versus the U.S. standard. The resultant ACF for each location is normalized again by dividing by the 96-Base-City average to provide a final ACF that reflects the relative relationship of construction costs between that location and the 96-Base-City average as 1.00.

MILCON ACFs were calculated using a LME ratio of 35/63/2. Sustainment ACFs were calculated using a LME ratio of 53/46/1.

Both CONUS and OCONUS construction market surveys were conducted in \12\2016/12/. The CONUS survey covered \12\ 340 locations that included 96 Base Cities (two per state in the continental US). The OCONUS survey included 83 locations, and was based on a market basket of goods for typical US labor, material, equipment, and construction methods./12/

CONUS and OCONUS surveys are performed annually. When local materials and construction methods differ from those represented by the published ACF, specific adjustments may need to be added to your project estimate to account for any differences. There is no easy correlation between the current MILCON ACFs and

previous MILCON ACFs for specific locations. No common benchmarks exist because both the Base City average and the relationships between cities change with each survey. It is possible, however, to compare differences between several locations in this database with differences between the same locations in previous databases.

The ACF is not intended to or capable of responding to rapid changes in the market place. Examples include Acts of God, accelerated construction schedules, changes in the demand and supply for construction materials, labor, and equipment. An increased demand for labor beyond what the local market can supply may require the enticement of premium pay, overtime hours, temporary living expenses, and travel expenses.

Users may request revisions to published ACFs when market conditions unexpectedly change. Each request must be initiated by the USACE District senior cost engineer through HQUSACE or by the NAVFAC regional cost engineer to their corresponding NAVFAC Atlantic or Pacific Tri-Service Cost Engineering committee member. The local cost engineer shall provide updated market basket ACF software input factors with adequate backup documentation to HQUSACE or NAVFAC for them to update the Tri-Service Cost Engineering ACF software.

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4-1.1 Area Cost Factors

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Table 4-1: Area Cost Factors Inside US



Table 4-1 Inside US

Table 4-1: Area Cost Factors Outside US



Table 4-1 Outside US

/12/

4-2 ESCALATION

Tables 4-2, 4-3, and 4-4 provide escalation (inflation) factors used to adjust unit costs in Tables 2 and 3 (expressed in base-year dollars) to the desired year, as follows:

4-2.1 Military Construction

Military construction project estimates that use unit costs from Table 2 should use the military construction escalation factor from table 4-2 for the expected midpoint of construction as described in \2\UFC 3-730-01/2/.

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Table 4-2: Military Construction Escalation Rates



Table 4-2

/12/

4-2.2 Plant Replacement Value Escalation Rates

Plant Replacement Value (PRV) calculations that use replacement unit costs from Table 3 should use the escalation factor from Table 4-3 for the desired program year.

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Table 4-3: PRV Escalation Rates



Table 4-3

/12/

4-2.3 Facilities Sustainment and Operation

Modeled facilities sustainment and operation cost estimates that use unit costs from Table 3 should use the O&M escalation factor from table 4D for the desired program year.

\12\

Table 4-4: Operation and Maintenance Escalation Rates



Table 4-4

/12/