UNIFIED FACILITIES CRITERIA (UFC)

DoD FACILITIES PRICING GUIDE\2V2/



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UNIFIED FACILITIES CRITERIA (UFC) Dod Facilities Pricing Guide\2\/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>	June 2011	Table 2: Revisions to six metric Reference Sizes; Table
		4-1: Corrected the spelling of three Locations and
		corrected MILCON ACF for several locations.
2	July 2012	Change UFC title; Update tables for FY 2012 application
3	September	Replaced Table 3 with revised table.
	2012	

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/.

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JAMES C. DALTON, P.E.

Chief, Engineering and Construction

U.S. Army Corps of Engineers

JOSEPH E. GOTT. P.E.

Chief Engineer

Naval Facilities Engineering Command

TERRY G. EDWARDS, P.E.

Director, Air Force Center for Engineering and the Environment

Department of the Air Force

MICHAEL McANDREW

Mules Mi Och

Director, Facility Investment and

Management

Office of the Deputy Under Secretary of

Defense (Installations and Environment)

UNIFIED FACILITIES CRITERIA (UFC) REVISION SUMMARY SHEET

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

Description of revision: This revision:

Updates all UFC tables (listed below) for FY \2\2012/2/ using pricing data available in January \2\2012/2/.

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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 \2\2012/2/ intended to support preparation of the DoD budget for FY \2\2014/2/. 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 macrolevel 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

\2The 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, \2\FY12 Supplemental Documentation, accompanying this UFC on the Whole Building Design Guide web site: http://www.wbdg.org/ccb/DOD/UFC/ARCHIVES/ufc 3 701 01 FY12 supplement.zip./2/

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.

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 \2\3-730-01/2/. As explained in UFC \2\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, \2\FY12 Supplemental Documentation, accompanying this UFC on the Whole Building Design Guide web site:

http://www.wbdg.org/ccb/DOD/UFC/ARCHIVES/ufc 3 701 01 FY12 supplement.zip./2/

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 \\2\October 2011/2/\. The listed facility types represent those facilities most frequently constructed by the Military Services.

\2The unit costs in Table 2 are average unit costs based on no less than 3 project awards per building type occurring since September 2008 for Army, Navy, Air Force, and (for medical projects) TRICARE Management Activity facilities as entered into the HII unit cost database prior to 15 Nov 2011. Renovation, addition/alteration projects 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 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 2011for this UFC.
- Number of Bidders: Based on actual bid data for the three Services, currently five (5) bidders is used in most facility-specific normalization calculations./2/

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Table 2: Facility Unit Costs for Military Construction



/2/

<u>General</u>: \2\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
- 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, 2008 thru September, 2010.

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
- 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, \2\2010/2I; 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. state imposed gross receipts taxes and general excise taxes
- f. special foundations, evidence-based design, intrusion detection system installation, base exterior architectural preservation guidelines
- g. enhanced Anti-Terrorism (AT) standards (exceeding the minimum in UFC 4-01-01, or when minimum standoff distances [Table B-1] are not achieved)

Progressive Collapse premiums, except 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).

- a. construction contingency allowances
- b. supervision, inspection, and overhead (SIOH)
- c. design costs (design-build contracts)
- 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)

Applicable adjustments for gross receipt or excise taxes, Acts of God, and unusual market conditions shall be documented and added to the cost estimate.

- a. <u>Medical facilities</u>: Unit costs <u>include</u> category A and category B equipment, but <u>do not include</u> category E and category F equipment costs.
- b. <u>Barracks and Unaccompanied Officers Quarters</u>: Unit costs <u>do not include</u> free-standing kitchen equipment. In addition to using the size adjustment factors, use the project size adjustment factors in UFC \2\3-730-01/2/.
- c. <u>Child Development Centers</u>: Unit costs <u>do not include</u> free-standing food service equipment or playground area and equipment.
- d. <u>Family housing</u>: Unit costs are based upon gross area and <u>include</u> sprinkler systems or fire-rated construction. Unit costs <u>include</u> postaward design costs.
- e. <u>Reserve facilities other than reserve centers</u>: 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. \2\Reference or Normalized size is the average size of the actual project awards for a facility type./2/



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 or factor to be used in DoD facilities cost models and metrics.

Whenever possible, unit costs and factors have been based upon commercial benchmarks. Detailed supporting data for unit costs is available as part of the supporting documentation download file accompanying this UFC on the Whole Building Design Guide web site:

\2\http://www.wbdg.org/ccb/DOD/UFC/ARCHIVES/ufc 3 701 01 FY12 supplement.zip/2/.

3-2 REPLACEMENT UNIT COSTS

3-2.1 Definition

Replacement provides a complete and useable facility 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 range targets), contingency costs, and supervision, inspection, and overhead (SIOH). Also not included are items generally considered personal property such as computer systems, telephone instruments, and furniture.

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:

Plant Replacement Value = Facility Quantity x Replacement Unit Cost x Area Cost Factor¹ x
Historical Records Adjustment² x Planning and Design Factor³ x
Supervision Inspection and Overhead Factor⁴ x Contingency
factor⁵

Replacement unit costs can also support large-scale program-level estimates for restationing 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 bldg 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

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.

associated with facilities operations (such as custodial services, 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:

Sustainment requirement = Facility Quantity x Sustainment Unit Cost x Area Cost Factor x Inflation Factor

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3-4 UNIT COST HIERARCHY

Unit costs for DoD cost models are classified by the following hierarchy of data sources:

<u>Source 1</u>: Standard, easily-accessible published data. Source 1 is the most desirable due to ease of access, wide applicability, and lack of bias. Examples include the DoD Tri-Service Committee on Cost Engineering, Service-specific cost guidance (USACE, USAF), commercial cost-estimating guidelines or models (e.g., M&S or Whitestone), or other Government-published cost guidance from federal, state, or local government agencies (e.g. Fairfax County (Virginia) Park Authority).

<u>Source 2</u>: Source 1 cost factors 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 (e.g. CEAC), and Service-validated cost factors for non-standard facilities that have no commercial counterparts (e.g. missile launch facilities or military ranges).

<u>Source 3</u>: Includes unpublished project-specific data derived from Service project documents (e.g. DD Forms 1391) or by calculating costs from reported plant replacement value and inventory, or derived from using a ratio of sustainment to 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

⁸ Facilities Sustainment Program Element (PE) definition.

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

- 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



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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. A complete table of all DoD sites that includes locality indices (LI) for adjusting operation costs is available as part of the supporting documentation download file accompanying this UFC on the Whole Building Design Guide web site:

\2\http://www.wbdg.org/ccb/DOD/UFC/ARCHIVES/ufc 3 701 01 FY12 acf.zip/2/.

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. For calculating operation costs, use the appropriate operation function LI with the corresponding operation cost 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. Operation LIs were developed by Whitestone Research Corporation specifically for application in the DoD Facilities Operation Model.

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, life support and mobilization, 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 **\2**2011/2/. The CONUS survey covered 376 locations that included 96 Base Cities (two per state in the continental US), and an additional 280 locations. The OCONUS survey included 99

locations, and was based on a market basket of goods for typical US labor, material, equipment, and construction methods. CONUS and OCONUS surveys are now being 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 each cycle. 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 to HQUSACE or NAVFAC for them to update the Tri-Service Cost Engineering ACF software.

4-1.1 Area Cost Factors

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Table 4-1: Area Cost Factors Inside US



Table 4-1: Area Cost Factors Outside US



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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



/2/

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.

\2\

Table 4-3: PRV Escalation Rates



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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.

\2\

Table 4-4: Operation and Maintenance Escalation Rates



/2/