

# UNIFIED FACILITIES CRITERIA (UFC)

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## DoD FACILITIES PRICING GUIDE



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**UNIFIED FACILITIES CRITERIA (UFC)**

**DoD FACILITIES PRICING GUIDE**

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER CENTER

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

| <b>Change No.</b> | <b>Date</b> | <b>Location</b>                                  |
|-------------------|-------------|--|
| 1                 | 6-25-18     | <u>Update Table 3 with RUC. Text update 3-2.</u> |
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**This UFC supersedes UFC 3-701-01, dated March 2011.**

## 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 most 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 Civil Engineer Center (AFCEC) 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](#). 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/>.

Refer to UFC 1-200-01, *DoD Building Code (General Building Requirements)*, for implementation of new issuances on projects.

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**UNIFIED FACILITIES CRITERIA (UFC)  
[REVISION] SUMMARY SHEET**

**Document:** UFC 3-701-01, *DoD Facilities Pricing Guide*

**Superseding:** UFC 3-701-01, dated March 2011

**Description:** The document provides updated cost and pricing data in support of facility planning, investment and analysis needs.

**Reasons for Document:**

- This UFC provides updated cost and pricing data intended to support preparation of the DoD budget.

**Impact:**

- Provides consistency across the DoD for the development of budgets for military construction projects.

**Unification Issues**

None

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## CHAPTER 1 INTRODUCTION

### 1-1 PURPOSE AND 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 2018 intended to support preparation of the DoD budget for FY 2020. It includes reference information organized into three chapters, as follows:

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

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

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

Chapter 3 describes the usage of 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 describes the usage of cost adjustment factors for location and price escalation that are applicable to the base unit costs in both Chapters 2 and 3.

### 1-2 APPLICABILITY.

This UFC applies to all projects in both the continental US (CONUS) and outside the continental US (OCONUS).

### 1-3 DATA TABLES.

All data tables in this UFC are found in a combined file under "Related Materials" accompanying this UFC on the (WBDG) Web site:

<https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-3-701-01>.

### 1-4 PROPONENT.

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

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## 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.

All data tables in this UFC are found under “Related Materials” in a combined file accompanying this UFC on the (WBDG) Web site:

<https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-3-701-01>.

### 2-2 FACILITY UNIT COST TABLE.

Table 2 provides facility unit costs for various DoD facility types in dollars per square meter (\$/SM) and equivalent English unit cost data in dollars per square foot (\$/SF) as of October 2017. The listed facility types represent only those facilities most frequently constructed by the Military Services, 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.

The unit costs in Table 2 are average unit costs for new construction based on no less than three project awards per building type occurring since September 2014 for Army, Navy, Air Force, Defense Education Activities (for school projects) and Defense Health Agency (for medical projects) facilities as entered into the Historical Analysis Generator (HII) unit cost database prior to 1 Nov 2017. Facility additions which are less than 25% of the Reference Size of the listed facility type, and projects outside of the continental United States (OCONUS), 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.

The data source for the facility unit costs is 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 is entered into HII database for comparable service category codes (CATCODEs). Normalized project unit costs are statistically analyzed to eliminate outliers before calculating the guidance unit cost (GUC).

#### 2-3.2 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.

- The Tri-Service CATCODEs Cross-walk table groups like service CATCODEs to a common Office of the Secretary of Defense (OSD) Code. OSD Codes are not published and are only utilized for this task of segregating data. A minimum of three projects are required within those defined years to create a dataset. If there is insufficient data available within the above three-year period, the dataset search is extended to the last four years.
- Projects are new construction only.
- Projects are located within the CONUS, plus Hawaii and Alaska, except where noted otherwise in Table 2.
- Projects with extreme variation from the mean (50%) are excluded., and
- Exclusion of inappropriate data for cause.

### **2-3.3 Data Normalization.**

Each facility-specific data set is 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.

- Escalation: The 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 2017 for this UFC,
- Number of Bidders: Based on actual bid data for the data set,
- Location: Normalize each project award by the appropriate ACF to the national average of 1.0, and
- Facility Size: Normalize each facility award amount in the dataset for facility size, using a normalization process that looks at the facility size as compared to the average facility size of the selected dataset by OSD code.

### **2-3.4 Primary Facility Included Costs.**

The facility unit costs include the following:

- 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,
- Sales tax on building materials,

- Building information system costs (e.g., conduits, racks, trays, telecommunication rooms) without any specialized communications requirements,
- Installed (built-in) building equipment and furnishings normally funded with MILCON funds,
- Energy Management Control System (EMCS) connections,
- Intrusion Detection System (IDS) infrastructure, including conduits, racks, and trays,
- Sustainable design and construction features - energy consumption reduction requirements mandated before 6 November 2016; and all other sustainable design features for criteria in effect from September 2014 thru September 2017 with the exception of renewable energy generation elements,
- Progressive Collapse premiums for the following specific facility types: Inpatient Hospital/Medical Center, Primary Care Clinic (Attached), Major Command Headquarters Building, Barracks/Dormitory, and Recruit Open Bay (Barracks), and
- Standard foundation systems (e.g. strip/spread footings, thickened edge slab for slab on grade).

### **2-3.5 Primary Facility Excluded Costs.**

The unit costs do not include the following:

- Gross receipt taxes or gross taxes, gross excise taxes, or state commerce taxes,
- “Acts of God” or unusual market conditions,
- Supporting facility costs,
- Equipment acquired with other fund sources, including pre-wired workstations or furnishing systems, intrusion detection systems,
- Sustainable design and construction features - renewable energy generation elements; energy consumption reduction requirements mandated on or after 6 November 2016; and all other features mandated since September 2017; these will be estimated separately in accordance with component guidelines and documented on DD Form 1391 per DoD Instruction 4170.11, Installation Energy Management,
- Special foundations (e.g. pre-stressed concrete piles, caissons), intrusion detection system installation, base exterior architectural preservation guidelines,

- 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,
- Cybersecurity costs,
- Supervision, inspection, and overhead (SIOH),
- Design costs (design-build contracts), and Construction cost growth resulting from user changes, unforeseen site conditions, or contract document errors and omissions.

### 2-3.6 Primary Facility Cost Considerations.

The following are cost considerations for primary facilities:

- Medical facilities: Unit costs include category A and category B equipment and building infrastructure for category C equipment,
- Housing for Unaccompanied Military Personnel: Unit costs for barracks, dormitories, and Unaccompanied Officers Quarters do not include free-standing kitchen equipment. In addition to using the size adjustment factors, use the project size adjustment factors in UFC 3-730-01,
- Child Development Centers: Unit costs do not include free-standing food service equipment or playground area and equipment,
- Family housing: Unit costs are based upon gross area and include sprinkler systems or fire-rated construction. Unit costs include post-award design costs,
- Reserve facilities other than reserve centers: Use the unit cost of the appropriate facility type, and
- Costs are independent of the acquisition strategy and are not specific to any single construction type.

## 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 unit costs are intended for macro-level analysis and planning and are not reliable for individual facilities or project estimates.

Unit costs and related factors are associated with FACs represented by a 4-digit code in the DoD Real Property Classification System (RPCS), which is a hierarchical scheme of real property types and functions that serves as the framework for identifying, categorizing, and modeling the DoD'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, and accompanies this UFC on the WBDG Web site. All data tables in this UFC are found in a combined file under "Related Materials" accompanying this UFC on the (WBDG) Web site: <https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-3-701-01>.

### 3-2 REPLACEMENT UNIT COSTS (RUC).

#### 3-2.1 \1\ Definition and Use of Replacement Unit Costs. /1/

\1\ Replacement unit costs form the basis of calculating Plant Replacement Value (PRV) in a consistent manner across DoD, representing a complete and useable facility built to current DoD design standards. 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. /1/

Replacement \1\ unit /1/ 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. Replacement \1\ unit /1/ costs do not include 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). \1\ unit /1/ costs also do not include items that are generally considered personal property such as computer systems, and furniture. See paragraph 3-5, Revising Unit Costs, for guidance on requesting changes \1\ to replacement unit costs /1/in Table 3.

#### 3-2.2 \1\ Plant Replacement Value (PRV). /1/

DoDI 4165.14 defines PRV as the cost to design and construct a notional facility to current standards to replace an existing facility on the same site. The factor values are provided in the “Report of the Plant Replacement Value (PRV) Panel, August 2001-May 2003” published by the Office of the Deputy Under Secretary of Defense (Installations and Environment). The standard DoD formula for calculating PRV is:

### **Equation 3-2 Calculating PRV**

$$\text{PRV} = Q \times \text{RUC} \times \text{ACF} \times \text{HF} \times \text{PD} \times \text{SIOH} \times \text{CF}$$

*Where:*

*PRV is plant replacement value*

*Q is facility quantity, in the same unit of measure as the RUC*

*RUC is replacement unit cost found in Table 3 of this UFC*

*ACF is area cost factor found in Table 4 of this UFC, to account for geographical differences in the costs of labor, materials and equipment*

*HF is an adjustment of 1.05 to account for increased costs for replacement of historical facilities or for construction in a historic district. The factor is 1.0, should the facility not qualify as “historical”.*

*PD is 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.*

*SIOH is the 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 (CONUS), and 1.065 (USACE) or 1.062 (NAVFAC) for facilities in the (OCONUS).*

*CF is a factor of 1.05 to account for construction contingencies*

## **3-3 SUSTAINMENT UNIT COSTS (SUC).**

### **3-3.1 Definition.**

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

- Regularly scheduled adjustments and inspections, including maintenance inspections (e.g., fire sprinkler heads, HVAC systems) and regulatory inspections (e.g., elevators, bridges),
- Preventive maintenance tasks,
- Emergency response and service calls for minor repairs, and
- 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 as well as overhead costs which include architectural and engineering services. 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, facility leases, specialized historical preservation, 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, grass cutting, landscaping, waste disposal, and the provision of central utilities) are also not included.

### **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:

#### **Equation 3-3 Calculating Sustainment Requirement**

$$SR = Q \times SUC \times SACF \times I$$

*Where:*

*SR is sustainment requirement*

*Q is facility quantity, in the same unit of measure as the SUC*

*SUC is sustainment unit cost found in Table 3*

*SACF is sustainment area cost factor found in Table 4*

*I is the value(s) representing future-year escalation for operation and maintenance accounts, published in Table 4-4.*

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 of use. 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 WBDG website: <https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-3-701-01>.

#### **3-4.1 Source 1 Published Data**

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, 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.

#### **3-4.2 Source 2 Similar Data**

Data that is 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 costs for non-standard facilities that have no commercial counterparts (e.g. missile launch facilities or military ranges).

#### **3-4.3 Source 3 Derived Data**

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 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 FAC scope and
- Revised costs should be suitable for application throughout DoD.

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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.

All data tables in this UFC are found in a combined file under “Related Materials” accompanying this UFC on the (WBDG) Web site:

<https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-3-701-01>.

#### 4-1.1 Application

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 RUCs from Chapter 3. For calculating sustainment costs, use the sustainment ACFs with the appropriate SUCs 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 ACFs or any component(s) that make up MILCON ACFs are only applicable to construction costs and should not be applied or utilized for any other purpose.

#### 4-1.2 Data Source

In general, the Tri-Service Cost Engineering ACF software program evaluates the local costs for a United States market basket of eight labor crafts, 18 construction materials, and four 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 and are relative to 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 are calculated using a LME ratio of 35/63/2. Sustainment ACFs are calculated using a LME ratio of 53/46/1.

#### 4-1.3 Survey

Both CONUS and OCONUS construction market surveys were conducted in 2017. The CONUS survey covered 300 locations that included 96 Base Cities (two per state in the continental U.S.). The OCONUS survey included 75 locations, and was based on a market basket of goods for typical U.S. labor, material, equipment, and construction methods.

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 the 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.

#### **4-1.4 Force Majeure**

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.

#### **4-1.5 User Requested Revisions**

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.

#### **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 UFC 3-730-01.

##### **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.

#### **4-2.3 Facilities Sustainment.**

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

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## APPENDIX A REFERENCES

### UNIFIED FACILITIES CRITERIA

[http://www.wbdg.org/ccb/browse\\_cat.php?o=29&c=4](http://www.wbdg.org/ccb/browse_cat.php?o=29&c=4)

UFC 3-730-01, *Programming Cost Estimates for Military Construction*

### PLANT REPLACEMENT VALUE

<https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-3-701-01>

Report of the Plant Replacement Value (PRV) Panel, August 2001 – May 2003, R&K Engineering, Inc. for the Office of the Deputy Under Secretary of Defense (Installations and Environment)