



Part I and II (Building and Support Facilities)

This Newsletter Supersedes the Army Facilities Pricing Guide, PAX Newsletter No. 3.2.2, revision dated 6 Apr 2017, and updates Primary & Support Facilities Unit Cost Tables, Tri-Service Military Construction Program (MCP) Index, and Table-1, Size Adjustment Factors. These costs will be used as a guide for preparation and/or review of Budget Submission of the FY20 Army Military Construction (MCA) and Army Family Housing (AFH) projects' parametric cost estimates and ENG3086s unless otherwise noted. These facility unit costs may not be directly applicable for those facilities that consist of unique requirements. This Newsletter is published and maintained on the web page at: <http://www.usace.army.mil/CostEngineering/ProgrammingAdministrationandExecutionSystemNe.aspx>

NOTE/Caution: Due to the diminishing number of MILCON projects in the recent years, some guidance unit costs (UC) listed in the 2018 PAX Newsletter are published with less than 3 projects during the recent years due to the significance of those catcodes in the upcoming MCA program. UC for those facility types are annotated in the "Remark" column with the number of projects such costs were based on. PAX UC user must be aware of this shortcoming if using these UC as guidance unit cost. If accepted by the ENG3086 reviewers and ACSIM, unit costs developed from similar and awarded project in another installation may be used as a basis.

A. PART-I – PRIMARY FACILITIES UNIT COSTS, dated 30 May 18

A.1. The Unit Costs in Part-1 Table represent the dollar per square foot cost as of 1 October 2020 for various CONUS Army facility types (to include projects from Alaska and Hawaii) that were awarded between FY 2014-17 and at least 3 projects per building type were entered into the Historic Analysis Generator (HII) database by 15 Dec 2017. When less than three (3) recent projects were awarded and entered into the HII database between 2014-2017 for a specific facility type (CatCode), then the last four (4) years (2014-2017) projects' data were considered. Only new construction projects located within the Continental United States (CONUS), to include projects in Hawaii and Alaska, were utilized to develop facility specific unit costs, except for Army Family Housing and DoD Schools where OCONUS projects were also considered. Addition-alteration projects, less than 25% of the Standard Reference Size for that facility type, were not included in the database.

A.2. Methodology and Escalation Factor: Facility-specific bid data were normalized to the average number of bidders for that specific facility type, Area Cost Factor of 1.0, Average size for that facility type, and 1 Oct 2017 price level using the actual construction inflation index. Unit Costs in the PAX Newsletter Table are escalated to 1 Oct 2020, the assumed mid-point of construction for a typical FY 2020 MILCON project using Appendix-C, Military Construction Program (MCP) Index. Appendix-C, MCP Index should be used for determining Cost Escalation Factor when a project's mid-point of construction is different than 1 Oct 2020, as shown in the following example for a project with a mid-point of 1 April 2021:

Anticipated Midpoint of Construction for a given project = 1 April 2021

MCP Indexes for 1 Oct 2020 and 1 Apr 2021 from Appendix-C, are 3032 and 3063 respectively

Cost Escalation Factor = 1 Apr 2021 MCP Index / 1 Oct 2020 MCP Index = 3063/3032 = 1.0102

A.3. Facilities with PAX Newsletter guidance unit costs are assumed to include the costs of the following features/requirements. Therefore NO Separate Line Item(s) shall be added for the following features:

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- a. Minimum antiterrorism design features inside the building, when minimum set back/stand-off distance is achieved.
- b. Progressive Collapse premiums for specific facility types that are normally designed with 3 or more stories, such as Inpatient Hospitals/Medical Centers, Primary Care Clinic (attached), Major Command Headquarters, Barracks/Trainee Barracks, etc.

Building Information Systems (e.g. conduits, racks, trays, telecommunication rooms) for facilities without any Special Communications Requirements.

- c. Energy Management Control System (EMCS) Connections.
- d. Intrusion Detection System (IDS) infrastructure, to include conduits, racks and trays.
- e. Sustainable Design and Development features for criteria in effect from September 2007 thru September 2012 (e.g. LEED Silver Rating, Energy Policy Act of 2005).
- f. Built-in Equipment and furnishings normally funded by MILCON funds,
- g. Standard uncomplicated foundation systems (e.g. Strip/Spread-footings, thickened edge slab for slab on grade). Any Special Foundations, such as Pile Foundations and Structural Fill cost should be listed separately.
- h. Contractor's mark-ups for overhead, and profit.
- i. An average sales tax on building materials.

A.4. PAX Guidance Unit costs do NOT generally include the following feature/requirement costs. Therefore, these costs are to be added as a Separate Line Item(s) in the budget estimate:

- a. Inside the building AT-FP features when minimum stand-off distance cannot be achieved or when enhanced AT-FP features are required due to the height of the building, such as for 3 or more storied buildings when the past designs did not require Progressive Collapse measures. Progressive Collapse premium for 3 or higher storied Standard Designs that have been previously built (e.g., barracks/dormitories) are assumed to be built-into the award data.
- b. Specialized/Secured Building Information System costs.
- c. Sustainable Design and Development features for criteria mandated since September 2012.
- d. Inside the building or Built-in Renewable and alternative Energy features (e.g. ground source heat pumps, roof mounted Solar Panels).
- e. Special Foundation cost (e.g. cost of pre-stressed concrete pile foundation or caissons).
- f. Special Architectural features to comply with the Historic Preservation Guidelines.
- g. Equipment acquired with non-MILCON fund sources (e.g., intrusion detection systems, pre-wired workstations).
- h. Construction Contingency and Supervision, Inspection, and Overhead (SIOH) allowances.
- i. Design-Build Contract Design Cost.
- j. State imposed Gross Receipt Taxes (also referred to as General Exercise Tax).
- k. Construction Cost Growth resulting from Unforeseen Site Conditions, Change Orders, Contract document Errors and/or omissions, or Unusual Market Conditions, such as extreme material or labor shortages at the project location.

A.5. **User Generated Unit Costs (UGUC):** User Generated Unit costs may be used when PAX UC is not available or when it is not completely applicable for the project. UGUC requires an explanation of how the unit cost was derived. When UGUC is used, NO adjustments for ACF, size adjustment, or escalation shall be made for all line items in the cost estimate that are based on UGUC. The ACF and Size Adjustment Factor shall set as 1 in PC-Cost/ENG3086 software.

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A.6. Average facility size shown in Part-I, Table may or may not be identical to the size/sizes listed in the Center of Standardization (COS) websites. Table-1, Size Adjustment Factor, which shows correlation between project size and construction cost, should be used to determine the appropriate project cost.

B. PART-II – SUPPORT FACILITIES UNIT COSTS, dated 13 May 2018

B.1. Support Facilities unit costs are based upon National Average Davis Bacon wages and material pricing. The Area Cost Factor (ACF) for this database is 1.0. Support Facility unit costs should be adjusted for the project location only when guidance unit costs are used; when local cost data (user generated cost data) is used, no ACF adjustments should be made.

B.2. All pricing includes the installing contractor's Overhead and Profit (O&P). General Contractor's mark-up is not included. The installing contractor's O&P includes the following factors:

- a. Employees wage rate and fringe benefits
- b. Workmen's compensation insurance
- c. Social Security and Federal and State Unemployment taxes
- d. Contractor's Overhead (11%) and Profit (10%)
- e. Data incorporates an average 6% Sales Tax.

B.3 Points of contact for this Newsletter at the US Army Corps of Engineers are: Mr. William Dailey (CECW-EC), (202) 761 7503, e-mail william.dailey@usace.army.mil and alternate POC, Mr. Ami G h o s h (HQUSACE), (202) 761 4492, e-mail Amitava.Ghosh@usace.army.mil

Facility Unit Costs (UC) are average unit costs based on the most Recent 4-Year (2014-17) project awards per building type. All UC's are the average unit costs for new construction, escalated to 1 Oct 2020, the assumed Mid-point of Construction for a typical FY2020, the Inflation Guidance (Interim) - FY19-2023 President's Budget, 22 Dec 2017 and Normalized to an Area Cost Factor of 1. Please refer to the "Notes" in the Remarks Column of Table.

CAT CODE		Average or Standard Size	Unit Of Measure (UoM)	FY20 Unit Cost (\$ / UoM)	Note-1: No data or Not enough useable Army Bid Data since 2014 to forecast UC. Note-2: Last year's unit cost (UC) escalated 1 year. Not enough recent Army data to forecast UC. Note-3: UC & Ref Size based on GUC/DOD/TriService Guidance.
13115	Information Systems Facility	XX	SF	0.00	See Note-1. Insufficient recent cost data
	Houses majority of Garrison level Info Management & Info Tech services plus associated admin Support & shop spaces.				
13120	Communications Center	34,000	SF	382.00	See Note-3. UC and Ref Size based on GUC/ DOD Guidance
	Hub facility for Internal & External Communications, commercial telephone feeds, and environmental control requirements; DSN switching equipment. No shielding included.				
13120	Remote Switching Unit (RSU)	XX	SF	XX	See Note-1. insufficient recent cost data
13131	Information Processing Center	XX	SF	XX	See Note-1, insufficient recent cost data
	Also called Data processing Ctr. Houses personnel & equipment for data-processing; special temp, humidity, environmental control requirements, raised floor and security measures.				
13181	Satellite Terminal Communications Facility	XX	SF	XX	See Note-1. Insufficient recent cost data
13310	Air Traffic/ Flight Control Tower	XX	SF	XX	See Note-1. Insufficient recent cost data
14110	Airfield Operations (Ops) Building	XX	SF	XX	See Note-1, insufficient recent cost data
	Houses flight operations and Airfield HQ functions with or w/o Flight Control Tower.				
14112	Aviation Unit Ops Bldg at Airfield	49,000	SF	256.00	See Note-3, UC and Ref Size based on GUC/TriService Guidance
	Houses Aviation Unit HQ admin, training, and storage area.				
14113	Access Control Facility - Mission Trng Complex	XX	SF	XX	See Note-1. Insufficient recent cost data
14113	Access Control Facility (ACF) Complex (Reference Sizes are the Average size of reported projects in each CATCD)				
	Visitors Control Center	XX	SF	XX	See Note-1. Insufficient recent cost data
	Search Office/ Sentry Building	XX	SF	XX	See Note-1. Insufficient recent cost data
	Gatehouse	XX	SF	XX	See Note-1. Insufficient recent cost data
	Guard booth (Also called Guardhouse)	XX	SF	XX	See Note-1. Insufficient recent cost data
	Search Area Canopy - Truck	XX	SF	XX	See Note-1. Insufficient recent cost data
14114	CIDC Field Operations Bldg	5,700	SF	519.00	Ref Size & UC based on project data in HII Published w/ 1 data point
14126	Kennel Facilities	2,770	SF	472.00	Ref size & UC based on project data in HII, 2 datapoints only
14129	Training Aid Spt Ctr for Range Complex	120,000	SF	247.00	Ref Size & UC based on project data in HII Published w/ 1 data point
14132	Ready Building-Airfield Arrival/Depart Control Fac	XX	SF	XX	See Note-1. Insufficient recent cost data
14161	Emergency Operations Ctr (EOC)	XX	SF	XX	See Note-1. Insufficient recent cost data
14162	Sensitive Compartmented Info Fac	4,100	SF	605.00	Ref size & UC based on project data in HII, 2 data points
	Note: SCIF SF cost for CONUS only. Contact Omaha Protective Design Center for guidance when programming OCONUS SCIF's.				
14165	Vehicle Maintenance Wash Facility: Consists of Wash Bays, Prewash Control, Pump House, Grit & Oil Chambers,				
	Control Bld for Vehicle Wash Rack	XX	SF	XX	See Note-1. Insufficient recent cost data
	Pump Bld for Vehicle Wash Rack	XX	SF	XX	See Note-1. Insufficient recent cost data
	Gravity Oil & Grease Separator	XX	KGD	XX	See Note-1. Insufficient recent cost data
	Water & Grit Separator	XX	KGD	XX	See Note-1. Insufficient recent cost data
14179	Overhead Protection/Canopy - General (Not Enclosed)	XX	SF	XX	see CC 14179 for Covered Hardstand (Canopy) under COF below
14182	Brigade (BDE) Headquarters Bldg	76,000	SF	XX	See Note-1 insufficient recent cost data **
	Use Size Adj Table-1, Part-1 to determine unit cost for other sizes (Small , Medium and X-Large) BDE HQs. Does Not include a SCIF.				
14183	Battalion (BN) HQ Bldg w/Classrooms	41,500	SF	365.00	Ref size & UC based on project data in HII
	Use Size Adj Table-1, Part-1 to determine unit cost for other sizes (Small , Medium and X-Large) BDE HQs.				
14184	BN HQ - Transient Training (ORTC)	11,000	SF	XX	See Note-1. Insufficient recent cost data **
14185	COMPANY OPERATIONS FACILITY (COF)				
	Admin & Readiness Modules are usually combined for small 1-Company (150 soldiers) or 2-CO (300 soldiers @150 PN/Company Units. For larger COFs, i.e., 3 or more companies, Admin (AM) and Readiness Modules (RM) are normally detached. RM storage space is fully conditioned and sprinklered for TA-50 Lockers and Arms Vault.				

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	The cost of contractor furnished and installed TA 50 Lockers are included in the UC. Admin and Readiness Modules may be programmed separately in DD1391/ENG3086				
14185	Admin/Readiness - Integrated Module	21,000	SF	308.00	Ref size & UC based on project data in HII (all HII datapoints from Alaska projects)
14185	Admin Module (AM) - Detached	XX	SF	XX	See Note-1. Insufficient recent cost data
14185	Readiness Module (RM) - Detached	XX	SF	XX	See Note-1. Insufficient recent cost data
14179	Canopy for Covered Hardstand (Not Enclosed)	XX	SF	XXX	See Note-1. Insufficient recent cost data
	Includes the cost of Canopy, supporting posts, their foundation and Hardstand cost. COF overhead protection is a Pre-engineered structure w/lighting, power, & lighting protection over the equipment layout area				
14179	Enclosed Hardstand (for extreme climates)	3,270	SF	308.00	Ref size & UC is based on 2 projects in Alaska
14190	Command & Control Fac (C2F)	101,000	SF	423.00	Ref size & UC based on all projects at the same installation
	Division and Corps Level Command & Control Bld for a all service components. C2F Bld contains 3 distinct functional elements, Admin, Emergency Network Operation, and SCIF spaces (does Not include new SCIF reqm cost) The costs of raised flooring, redundant electrical/mechanical systems, and secured access system are included.				
	C2F Bldg above Corps level is a non-standard facility.				
14190	Army Command (ACOM) Headquarters	160,000	SF	365.00	See Note-3, UC & Ref Size based on GUC/ DOD guidance
14955	Wash Rack / Platform - Army Reserve Centers	1	EA	188,000.00	Use for 1001-1600 SF Wash Racks. Based on Army Reserve Center projects.
14960	Grease Rack - Low Pressure w/Wash Water Treatment	XX	EA	XX	See Note-1. Insufficient recent cost data
14962	Central Wash Facility, 16 Stations	XX	EA	XX	See Note-1. Insufficient recent cost data
14970	Bi -Level Loading Ramp, Army Reserve Centers	1	EA	268,238.00	Ref size & UC based on one project data in HII
14970	Single-Level Loading Ramp, Army Reserve Center	1	EA	78,898.00	Ref size & UC based on one project data in HII
14970	Ammo Loading Dock for Range - Single Level	1	EA	0.00	See Note-1, UC and Ref Size based on GUC/TriService Guidance
14970	Vehicle Instrumentation Dock, 900 SF	1	EA	0.00	See Note-1, insufficient recent cost data
17120	General Instruction Bldg (GIB)&Total Army School (TASS) -Not for Ra	42,000	SF	283.00	Ref size & UC based on project data in HII
	<u>RANGE FACILITIES COMPLEX</u>				
	A typical Range Complex consists of Target Emplacements/Firing Points, Range Ops and Control Area, and a number of vertical structures, such as, Control Tower, Range Ops & Storage Bld, Range Classroom Bld, Ammo Breakdown Bld, Field Latrines plus other covered (but not enclosed) structures, e.g. Covered Bleachers, Covered Mess, etc.				
14113	Access Control Fac - Mission Trng Complex	XX	SF	XX	See Note-1. Insufficient recent cost data
14129	Training Aid/Support Center (TSC)	XX	SF	XX	See Note-1. Insufficient recent cost data
14970	Single Level Ammunition Loading Dock - Range	1	EA	78,898.00	Ref size & UC based on one project data in HII
14970	Bi-Level Loading Dock for Army Reserve Centers	1	EA	268,238.00	Ref size & UC based on one project data in HII
17121	Indoor Firing Range	36,000	SF	320.00	See Note-3. UC and Ref Size based on GUC/TriService Guidance
17122	Ammunition Breakdown Bldg	185	SF	777.00	Ref size based on the average size of projects in Hii for Ammo Breakdown Bldg
17122	Operations/Storage Bld - Small	800	SF	431.00	Ref size based on the average size of projects in Hii for Ops/Storage Bldg, small
17122	Operations/Storage Bld - Large	1,800	SF	139.00	UC & Ref size based on one projects in Hii for Ops/Storage Bldg, large
17123	Range Classroom Building	800	SF	376.00	Also referred to as a Gen Instr Bldg for Range. Ref size & UC based on one project in HII
17123	After Action Review (AAR) Bld - Small	XX	SF	XX	See Note-1. Insufficient recent cost data
17123	After Action Review (AAR) Bld - Large	3,100	SF	254.00	Ref size & UC based on one project in HII
17123	Combined ROC/AAR-Digital Range	XX	XX	XX	See Note-1. Insufficient recent cost data
17139	Covered Mess - Range (Small)	800	SF	182.00	Includes hardstand cost below canopy. Ref size based on the average size of projects in HII.
17139	Covered Mess - Range (Large)	XX	SF	XX	See Note-1, insufficient recent cost data
17139	Covered Mess - Service Schools	XX	XX	XX	See Note-1, insufficient recent cost data
17213	Mission Command Trng Center (formerly BCTC)	36,210	SF	396.00	Ref size & UC based on one project data in HII
17801	Basic 10-25m Firing Range (Zero)	FP	EA	Site Specific	Requires 32 Firing Points (FP)
17805	Automated Record Fire Range	FP	EA	Site Specific	Requires 16 FPs
17806	Modified Record Fire Range	FP	EA	166,530.00	Requires 16 FPs, UC for this project is site spific & based on one project data only

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17821	Combat Pistol/MP Firearms Qualifications	FP	EA	Site Specific	Requires 15 FPs
17878	Urban Assault Course	FP	EA	Site Specific	Requires 5 Stations. Each station represents one FP
17879	Live Fire Exercise Shoot house	FP	EA	Site Specific	Requires 10 FPs, each room and Corridor equals 1 FP
	<u>Range Control Towers (RCT)</u>				
	Open Observation decks, stairs, and walkways are calculated as half areas. Foundation cost is included in the Unit Cost.				
17971	Control Tower - open observation deck	1	EA	606,194.00	Ref cost based on the average UC of four projects in HII
73075	Field Latrine - Dry Type, Aerated Vault	300	SF	763.00	Ref size & UC based on one Field Latrine project in Hii only
73075	Field Latrine -Wet Closet	550	SF	765.00	Ref size based on two Field Latrine (Wet) projects only
75061	Covered Bleacher - Range (Bleacher Enclosure)	1	EA	133,957.00	Ref size & UC based on the average size of two projects in HII
75061	Covered Bleacher for Svc Schools	XX	EA	XX	See Note-1. Insufficient recent cost data
17133	Vehicle Maint. Instructional Bldg	XX	SF	XX	See Note-1. Insufficient recent cost data
17134	Aircraft Maint Instructional Bldg	XX	SF	XX	See Note-1. Insufficient recent cost data
17135	Laboratory Instructions Bldg	XX	SF	XX	See Note-1. Insufficient recent cost data
17136	Automation Aided Instruction Bldg	XX	SF	XX	See Note-1. Insufficient recent cost data
17137	Material Handling Instructional Bldg	XX	SF	XX	See Note-1. Insufficient recent cost data
17139	Covered Mess	XX	SF	See Range	See CATCD 17139, Covered Mess under Range Complex above
	<u>ARMY RESERVE CTR COMPLEX</u>				
17140	Training Bldg- Army Reserve (Army Res Ctr Bldg)	61,110	SF	283.00	Ref size & UC based on the average size of Army Reserve Bldg in Hii
17211	Simulator Building - Army Reserve	1,850	SF	446.00	UC & Ref size based on one Reserve project in Hii
14970	Loading Dock, Bi-Level (Also called Loading Ramp)	1	EA	268,238.00	Not Covered - UC bases on one project data in Hii, See Bi-Level Ramp in Range Complex
21409	Organizational Maintenance Shop (OMS)	9,800	SF	349.00	Ref size bases on the average size of Army Reserve Bldg in Hii
44220	Storage Building, Unheated	3,470	SF	133.00	Ref size bases on the average size of Army Reserve Bldg in Hii
17211	Simulator Building, Small <18,000 SF	9,200	SF	XX	Note-3, Formerly listed as CATCD 17210
17211	Simulator Bld, Large >18,000 SF	43,000			
17971	Control/Observation Tower	XX	EA	See Range	See CATCD 17971 under Range Complex above
	<u>AIRCRAFT (AC) MAINT HANGARS - DOD, reference only</u>				
21110	Hangar - General Purpose, up to 40' high	54,000	SF	312.00	See Note-3. UC and Ref Size based on GUC/TriService Guidance
21110	Hangar - High Bay, >40' high	60,000	SF	312.00	See Note-3, UC and Ref Size based on GUC/TriService Guidance
	<u>ARMY HANGAR STANDARDS- Manned and Unmanned Army Hangar Facilities</u>				
	Army Standard Hangars include a High Bay maintenance area, Allied Shops, Tech Supply, Tool Storage, Flight Operations, and Company Administrative & Supply spaces.				
21110	Assault/Attack-Reconnaissance (AAB) BN Hangar	126,800	SF	297.00	Ref size based on the average size of projects in HII
21110	General Support Aviation BN (GSAB) Hangar	XX	SF	XX	See Note-1. Insufficient recent cost data
21110	Aviation Support BN (ASB) Hangar	XX	SF	XX	See Note-1. Insufficient recent cost data
21115	Unmanned Aircraft System (UAS) Hangar	53,100	SF	292.00	Ref Size & UC based on the average of UAV Maintenance Hgr projects in HII
21117	Aircraft Electronic-Avionics Maint Shop	XX	SF	XX	See Note-1. Insufficient recent cost data **check GUC
21120	Aircraft Component Repair Shop (Machine Shop)	XX	SF	XX	See Note-1. Insufficient recent cost data
21130	Aircraft Paint/Corrosion Control Shop	96,000	SF	442	See Note-3. UC and Ref Size based on GUC/DOD/TriService Guidance
21140	Aircraft Engine Test facility	XX	SF	XX	See Note-1. Insufficient recent cost data
	<u>TACTICAL EQUIPMENT MAINT FACILITY (TEMF) COMPLEX For Track & Wheeled Vehicles</u>				
	TEMF Complex includes Admin space, Repair & Maintenance shops and work-bays w/ overhead crane, arms/COMSEC vault, Storage areas, Deployment Storage bldg, POL Storage				
	bldg, Tactical Vehicle Parking Apron, Hazard Waste Storage area,				

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ORGANIZATIONAL MAINT SHOP - ARMY RESERVE					
21409	Organizational Maint Shop, Small <10,000 SF	9,800	SF	AR Reserve	See CATCD 21409 under Armer Reserve Center Complex
21409	Organizational Maint Shop, Medium 10,000-40,000 SF	XX	SF	XX	See CATCD 21409 under Armer Reserve Center Complex
21409	Organizational Maint Shop, Large, >40,000 SF	XX	SF	XX	See Note-1. Use Size Adj Table for this facility using the medium TEMF UC
ORGANIZATIONAL MAINT SHOP - REGULAR ARMY					
21410	Small TEMF < 21000 SF	10,000	SF	348.00	See Note -3
21410	Medium TEMF >21000 SF	34,000	SF	273.00	See Note-3
21410	Large TEMF - Army, Regular	XX	SF	XX	See Note-1. Insufficient recent cost data
21410	Extra Large TEMF - Army, Regular, >60,000 SF	XX	SF	XX	See Note-1 insufficient recent cost data
21412	Unmanned Aerial Vehicle (UAV) Storage Bld, 18' high	XX	SF	XX	See Note-1. Insufficient cost recent data
21470	POL Storage Bldg - TEMF	233	SF	248.00	Ref size & UC based on project data in HII
21470	Hazardous Waste Storage Bldg - TEMF	200	SF	315.00	Ref size & UC based on project data in HII
44135	Hazardous Material Storage Bldg - TEMF	XX	SF	XX	Use the same UC as CATCD 21470 above
44220	Storage Bldg - Small, Unheated - Army Reserve	XX	SF	XX	See CATCD 44220 under ARCC
44222	Storage Shed (Covered, not Enclosed), ORTC	XX	SF	XX	See Note-1. Insufficient recent cost data
21412	Organizational Storage Bldg- TEMF, <5,000 SF	2,950	SF	251.00	Ref size & UC based on project data in HII
21412	Organizational Storage Bldg- TEMF, >5,000 SF	18,090	SF	167.00	Ref size & UC based on project data in HII
21610	Ammunition Renovation Shop	XX	SF	XX	See Note-1. Insufficient recent cost data
21612	Ammunition Surveillance Shop	XX	SF	XX	See Note-1. Insufficient recent cost data
21630	Ammunition Demilitarization Fac	XX	SF	XX	See Note-1. Insufficient recent cost data
21710	Electronics Maint Shop - Depot Level	XX	SF	XX	See Note-1. Insufficient recent cost data
21740	Aircraft Avionics Maint Shop	XX	SF	XX	See Avionics Maint Shop, CATCD 21117 Remarks above
21850	Battery Shop	XX	SF	XX	See Note-1. Insufficient recent cost data
21881	Parachute Repair Shop	XX	SF	XX	See Note-1. Insufficient recent cost data
21885	General Purpose Maint Shop	XX	SF	XX	See Eng/Housing Maint Shop, CATCD 21910 UC below
21910	Engineering/Housing Maint Shop	8,200	SF	287.00	See Note-3: UC & Ref Size based on GUC / DOD Guidance.
31010	Chemistry Lab	XX	SF	XX	See Note-1. Insufficient recent cost data
31410	Ground Transportation Equip Bldg	XX	SF	XX	See Note-1. Insufficient recent cost data
42120	Hi Explosive Magazine w/Crane	9,400	SF	462.00	See Note-3, UC & Ref Size based on GUC/ DOD guidance
42180	Igloo Storage, Depot Level	XX	SF	See 42120	See Note-1. Use same UC as in CC42120 above
42183	Gen. Purpose Magazine w/o Crane	9,600	SF	519.00	See Note-3. UC and Ref Size based on GUC/ DOD Guidance
42283	Gen Purpose Magazine w/o Crane - Installation	XX	SF	See 42183	See Note-1. Use same UC as in CC42183
43211	Cold Storage Bld w/Processing	XX	SF	XX	See Note-1. Insufficient recent cost data
43211	Cold Storage Bld w/o/o Processing	XX	SF	XX	See Note-1. Insufficient recent cost data
44110	General Purpose (GP) Warehouse, Depot				See CATCD 44220 below
44130	Controlled Humidity Warehouse	XX	SF	XX	See Note-1. Insufficient recent cost data
44135	Hazardous Material Storage, Depot	XX	SF	XX	See Note-1. Insufficient recent cost data
44150	Flammable Material Storage, Depot	XX	SF	XX	See Note-1. Insufficient recent cost data
44181	Covered Vehicle Storage, Depot	XX	SF	XX	See Note-1. Insufficient recent cost data
44182	Vehicle Storage Building, Depot	XX	SF	XX	See Note-1. Insufficient recent cost data
44210	Aircraft Parts Storage Fac, Installation	XX	SF	XX	See Note-1. Insufficient recent cost data
44220	Gen Purpose (GP) Warehouse, Installation				
44220	Low-Bay, Up to 16' Stack height, <15,000 SF	3,600		140.00	See Note-3: UC & Ref Size based on GUC / DOD Guidance.
44220	Low-Bay, Up to 16' Stack height, >15,000 SF	26,000	SF	195.00	See Note-3: UC & Ref Size based on GUC / DOD Guidance.
44220	Hi-Bay, > 16' Clear Stack height	21,000	SF	221.00	See Note-3: UC & Ref Size based on GUC / DOD Guidance.
44220	Lawn Equipment Bldg for AIT/BT barracks	XX	SF	XX	See Note-1. Insufficient recent cost data
44220	Unheated Storage Bldg - Army Reserve	XX	SF	XX	See CATCD 44220, Storage Bldg, Reserve under TEMF Complex above

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44222	Storage Shed (Covered, not Enclosed) - Small	XX	SF	XX	See CATCD 44222, Storage Shed, under TEMF Complex above
21412	Organizational Equipment Storage Bldg	XX	SF	XX	See Note-1. Insufficient recent cost data
	For COF Equip. Storage UC, see Readiness Module- CC14185				
44224	Organizational Storage Bldg	2,700	SF	114.00	
44224	Lawn Mower Storage Bldg for AIT/BT barracks	XX	SF	XX	See Note-1. Insufficient recent cost data
44228	HAZMAT Storage- Installation	XX	SF	See CC21470	Use the same UC as CATCD 21470
45210	Open Storage Area, Installation	XX	SY	XX	Use CATCD 851XX, Pavements, from Part-II, PAX
	<u>MEDICAL FACILITIES</u>				
51010	Inpatient Hospital/Medical Center	XX	SF	XX	See Note-1. Insufficient recent cost data
51010	Medical Clinic attached to Hospital	XX	SF	XX	See Note-1. Insufficient recent cost data
53040	Veterinary Clinic	XX	SF	XX	See Note-1. Insufficient recent cost data
55010	Small Medical Clinic <60,000 SF, Free Standing	0	SF	XX	<60,000 SF. Includes boilers & chillers cost
55010	Large Medical Clinic >60,000 SF, Free Standing	110,000	SF	356.00	>60,000 SF. Excludes the boiler & chillers, which are located in a Central Utility Plant
55010	Mental/Behavioral Health Clinic	XX	SF	XX	See Note-1. Insufficient recent cost data
54010	Dental Clinic	XX	SF	XX	Includes boilers & chillers cost
53025	Satellite Pharmacy	XX	SF	XX	See Note-1. Insufficient recent cost data
53060	Medical Warehouse	XX	SF	XX	See Note-1. Insufficient recent cost data
53071	Ambulance Garage	XX	SF	XX	See Note-1. Insufficient recent cost data
61001	Military Entrance Processing Stn	XX	SF	XX	See Note-1. Insufficient recent cost data
61050	Administrative Fac, General Purpose				
	This multipurpose building provided office space, visitors area, auditorium, cafeteria, storage space, etc for administrative personnel				
61050	Administrative Fac, General Purpose, Small	4,700	SF	XX	See Note-1. Last year PAX already used escalated value
61050	Administrative Fac, General Purpose, Medium	70,000	SF	288.00	See Note-3, UC and Ref Size based on GUC/TriService Guidance
61050	Administrative Fac, General Purpose, Large	205,000	SF	XX	See Note-1, Last year PAX already used escalated value
	Prewired work station @ \$4500/Stn - installed, NOT incl.				
61050	Command Headquarters Bldg	XX	SF	See 14190	New CATCD 14190, see CC14190 for UC
62010	Underground Administrative Facility	XX	SF	XX	See Note-1. Insufficient recent cost data
	<u>FAMILY HOUSING DWELLINGS - CONUS & OCONUS (Contact Family Housing COS, CENAO for determining additional Planning Factor for multi-family dwelling)</u>				
	Show "Families (FA)" as the UOM in the in the Primary Line item by category code. Use SF per Family as the UOM in Subline item. Don't need to size adjust the UC per SF (using the Size Adj Table-1, Part -I) as the adjusted unit cost per FA by catcode, grade, and number of bedroom/per dwelling is already provided in the UC column below.				
	Use Size Adj Table-1, Part - II only for project size adj. Normally 2-car garage (400 SF) are provided with each dwelling. GSF of garage is not included in the dwelling GSF, but cost of garage is considered included in the AFH unit cost as a norm. (i) Add up to 300 SF/FA for harsh climates, defined as having more than 7,500 Heating Degree Days (HDD) annually, or 5,500 Cooling Degree Days (CHD), annually. (ii) Gross SF may be increased by 10% FA for housing units for an officer holding a special command position, for the commanding officer of a military installation, and for the senior non-commissioned officer of a military installation.				
	<u>FAMILY HOUSING DWELLINGS</u>	Bedroom	Unit & SF		
71111	General Officer, Grade O10	4 Bedrms	SF / FA	212.29 / 240.98	
71111	General Officer, Grade O9	4 Bedrms	SF / FA	212.29 / 240.98	
71111	General Officer, Grade O8	4 Bedrms	SF / FA	214.20 / 243.53	
71111	General Officer, Grade O7	4 Bedrms	SF / FA	214.20 / 243.53	
71112	Colonel, Grade O6	4 Bedrms	SF / FA	210.00 / 232.69	
71113	Warrant Officer, Grade W4 & 5	3 Bedrms	SF / FA	199.51 / 227.66	
71113	Warrant Officer, Grade W4 & 5	4 Bedrms	SF / FA	198.29 / 226.44	

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71113	LT. Colonel & Major, Grade O4 & 5	3 Bedrms	SF / FA	199.51 / 227.66	
71113	LT. Colonel & Major, Grade O4 & 5	4 Bedrms	SF / FA	198.29 / 226.44	
71114	Warrant Officer, Grade W1-3	3 Bedrms	SF / FA	182.38 / 209.30	
71114	Warrant Officer, Grade W1-3	4 Bedrms	SF / FA	179.32 / 206.24	
71114	Warrant Officer, Grade W1-3	5 Bedrms	SF / FA	176.26 / 204.41	
71114	CO Grade Officer, O1-3	3 Bedrms	SF / FA	182.38 / 209.30	
71114	CO Grade Officer, O1-3	4 Bedrms	SF / FA	179.32 / 206.24	
71114	CO Grade Officer, O1-3	5 Bedrms	SF / FA	176.26 / 204.41	
71115	Senior NCO, E-9	3 Bedrms	SF / FA	200.74 / 227.66	
71115	Senior NCO, E-9	4 Bedrms	SF / FA	199.51 / 226.44	
71115	Senior NCO, E-7 & 8	3 Bedrms	SF / FA	182.38 / 209.30	
71115	Senior NCO, E-7 & 8	4 Bedrms	SF / FA	179.32 / 206.24	
71115	Senior NCO, E-7 & 8	5 Bedrms	SF / FA	176.26 / 204.41	
71116	Junior NCO/Enlisted, E-1 thru 6	3 Bedrms	SF / FA	186.05 / 213.59	
71116	Junior NCO/Enlisted, E-1 thru 6	4 Bedrms	SF / FA	183.60 / 210.53	
71116	Junior NCO/Enlisted, E-1 thru 6	5 Bedrms	SF / FA	180.54 / 207.47	
	<u>GARAGE & CARPORTS</u>				
71410	Detached Garage, Masonry, 2-Car	XX	SF	XX	See Note-1. Insufficient recent cost data
71410	Detached Garage, Wood, 2-Car	XX	SF	XX	See Note-1. Insufficient recent cost data
71411	Carport - 2 Cars	XX	SF	XX	See Note-1. Insufficient recent cost data
85218	Parking Garage, Multistoried	XX	SF	XX	UC provided under CATCD 85218 below
72010	Temporary Lodging	XX	SF	XX	See CATCD 72412 also called Transient Housing
72111	BARRACKS - Permanent Party (UEPH)	125,252	SF	XX	See Note-1, Insufficient recent cost data
	Unit cost does not include the cost for free standing equipment. All finished of unfinished areas with an average height of 6'-11" (2100 mm), measured from the underside of the structural system, and areas with perimeter walls measuring 4'-11" (155 mm) or more shall be counted as full scope				
Various	<u>WARRIORS IN TRANSITION (WT) BARRACKS COMPLEX</u>				
72112	WT Barracks, 56 Person Module	XX	SF	XX	See Note-1 above
14188	WT Unit Admin Fac, Large	XX	SF	XX	See Note-1 above
14188	WT Unit Admin Fac, Small	XX	SF	XX	See Note-1 above
14188	WT Company (CO) Admin Fac	XX	SF	XX	See Note-1 above
14184	WT Jt BN-CO Admin/Ops Fac	XX	SF	XX	See Note-1 above
72210	WT Dining Fac-Seating 251-500 Pers	XX	SF	XX	See CATCD 72210, Dining Fac (DFAC), below for UC
74033	WT Soldiers and Family Assist. Ctr (SFSC)	XX	SF	XX	SFSC design never launched.
74033	WT SFSC - Small	XX	SF	XX	SFSC design never launched.
74033	WT SFSC - Large	XX	SF	XX	SFSC design never launched.

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Various	<u>OPERATIONAL READINESS TRAINING COMPLEX (ORTC)/ TRANSIENT TRAINING COMPLEX</u>				
	The ORTC Std design is based on a battalion sized ORTC to include Transient Barracks, Battalion HQ, Company HQ, Vehicle Maintenance, Dining, Officer Quarters, etc for transient trainees. These are more austere than permanent party facilities. No Cat Code exists for the Complex, utilize the catcode for the largest facility				
72114	ORTC Transient Training Barracks	41,000	SF	224.00	See Note-2, Last year's PAX UC escalated 1 year, not enough recent Army data to forecast
72412	Sn. Enlisted Officers Qtrs, Transient	33,000	SF	XX	See Note-1 above
14184	Battalion HQ Bldg, Transient Trng	XX	SF	XX	See Note-1 above
14186	COF/Company HQ, Transient Trng	XX	SF	XX	See Note-1 above
14187	Brigade HQ Bldg, Transient Trng	XX	SF	XX	See Note-1 above
14179	Hardstand Cover (Canopy) - Transient Trng	XX	SF	XX	See CC 14179 under COF Complex above; incl Canopy column cost, no Hardstand cost
21406	Vehicle Maint Shop, Transient Trng	XX	SF	XX	See CC 21409 under the Army Reserve Organizational Maint Shop
72212	Dining Fac, 720 PN-Transient Trng	XX	SF	XX	See CC 72212 under Dining Facilities below
72212	Dining Fac, 1428 PN-Transient Trng	XX	SF	XX	See CC 72212 under Dining Facilities below
44222	Covered Storage Sheds	2,800	SF	See TEMF	See CC 44222, Storage Shed, under TEMF Complex above
	<u>ADVANCE INDIVIDUAL TRAINING (AIT) COMPLEX</u>				
	A Standard AIT Barracks Complex consists of Brigade HQ, Battalion HQ, Barracks/COF Buildings for upto 4-300 person companies per BN, Dining Facility, and other required buildings and site facilities.				
72121	AIT Barracks w/CO Ops (COF) Space	186,000	SF	237.00	Ref size based on the average size of the AIT Barracks/COF buildings in HII
72121	AIT Barracks w/COF Space - Army Reserve	82,000	SF	202.00	Ref size based on the average size of the AIT Barracks/COF buildings in HII
14182	AIT Brigade HQS, if needed	XX	SF	XX	See CC 14182, Brigade HQ provided earlier
14183	AIT Battalion HQS w/ Classrooms	XX	SF	XX	See CC 14183, Battalion HQ provided earlier
72210	Dining Fac, AIT, 1300 PN, 544 seats	32,000	SF	394	See CC 72210, Small Basic and AIT Dining under Dining Facilities below
72210	Dining Fac, AIT, 2600 BN, 1088 seats	XX	SF	XX	See CC 72210, Large Basic and AIT Complex under DFAC below.
	<u>BASIC TRAINING (BT/IET) and ONE STATION UNIT TRAINING (OUST) BARRACKS COMPLEX</u>				
	A Standard BT/OUST Complex includes upto 5-64,700 SF each Barracks/Company Ops Bldgs for 1200 soldiers, a Battalion HQ Bld/ classroom, a Dining Facility, and Lawn equipment Storage (2000 SF) building, a 1/4 mile 8-lane running track and training pits.				
72181	BT/OUST Brks w/COF Space	129,000	SF	XX	Note-1, Insufficient recent cost data
	Calculate average individual Barrack/COF Bldg size, then use Size Adj. Factor Table-1, Part-I Table to determine BT Barracks/COF Bld UC using PAX Unit Cost.				
	BT/OUST Barracks Complex may contain 1,2,3, 4 or 5 Brks/COF Bldgs. Scope of Covered Training Area under Barracks w/CO Ops Space is included in each Bldg GSF				
72181	Battalion (BN) HQS W/ Classrooms	XX	SF	XX	See Note-1. Insufficient recent cost data
72210	Dining Fac for 1 BN, 1300 (PN) trainees, 544 seats	32,000	SF	XX	See CC 72210, Small Basic and AIT Dining under DFAC below
72210	Dining Fac for 2 BN, 2600 (PN) trainees, 1088 seats	55,000	SF	XX	Use Size Adj Table using 1300 trainee UC below for this facility
	Covered Queuing Area is included in the Dining Facility area calculation. Standard Reference Size for the BT/OUST Training Dining Facility is 30,500 SF.				
	<u>DINING FACILITIES (DFAC)</u>				
	Cost includes MCA Funded Kitchen equipment & installation. DFACs are categorized and, then unit cost for each size is developed separately.				
72210	DFAC - Permanent Party - Small, 400 - 600 PN, <15,000 SF	19,000	SF	XX	See Note-1. Insufficient recent cost data
72210	DFAC - Permanent Party - Medium, 1057-1716 PN, 15,000 to 39,999 SF	29,000	SF	378.00	Note -3, UC & Ref Size based on GUC/DoD Tri-Service Guidance
72210	DFAC - Permanent Party - Large, 1057-1716 PN, >40,000 SF	XX	SF	XX	See Note-1. Insufficient recent cost data

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72210	DFAC - Basic & AIT Complex - Small, 1300 PN, 544 Seats	32,000	SF	394.00	Ref size & UC based on project data in HII
72210	DFAC - Basic & AIT Complex - Large, 2600 PN, 1088 seats	55,000	SF	XX	See Note-1. Insufficient recent cost data
72212	DFAC - ORTC - Small, 720 PN	17,500	SF	500.00	Ref size & UC based on 2 project data in HII
72212	DFAC - ORTC - Large, 1428 PN	21,000	SF	XX	See Note-1. Insufficient recent cost data
72410	Unaccompanied Officers Quarters	0	SF	XX	See Note-1, Insufficient recent cost data
72412	Transient Training Officers Quarters	XX	SF	XX	See CC 72412 Sn. Enlisted Officers Qtrs, Transient under ORTC
73010	STAND ALONE FIRE STATIONS (FS) - FS & Air Rescue Fire Fighting Fire Stations (ARFF)				
	These are stand alone Fire Stations. Their sizes are determined by the authorized number of Apparatus Bays which house Vehicles, number of Dorm Emergency rooms, and whether they are HQs or Satellite Stations. A standard Apparatus Bay shall be 62' x 91' for a 2- or 3-CO Station; for a Air Rescue Fire Fighting (ARFF) is 70' x 91'				
73010	Airfield Fire/Crash Rescue Station	32,000	SF	323.00	See Note-3: UC & Ref Size based on GUC / DOD Guidance.
	CONSOLIDATED FIRE, SAFETY & SECURITY Facilities (FSS)/DEPT of EMERGENCY SERVICES (DES) Facilities				
	Combined Military Police, Safety, Fire & Emergency Svc. Also called Directorate of Emergency Services (DES) Facility				
73010	Consolidated FSS Fac - Medium	39,000	SF	361.00	Ref size & UC based on 2 project data in HII
73016	Police/Law Enforcement (MP) Station	XX	SF	XX	See Note-1. Insufficient recent cost data
73017	Chapel - includes Pew seating.	23,000	SF	344.00	See Note-3: UC & Ref Size based on GUC / DOD Guidance.
73017	Chapel for Initial Entry Trainees (IET)	XX	SF	XX	See Note-1. Insufficient recent cost data
73018	Religious Education Facility - Medium	XX	SF	XX	See Note-1. Insufficient recent cost data
	For upto 10 small groups of 55-70 PN. A dedicated space for Religious Education and Religious Activities. Should be reported separately from the worship space if collocated in a Chapel, catcode 73017. Use Size Adjustment Factor Table-1, for other UC of other sizes.				
73019	Chapel Family Life Ctr (300-450 PN)	XX	SF	XX	See Note-1. Insufficient recent cost data
73046	DEPENDENT SCHOOLS				
73046	Elementary -CONUS	99,000	SF	343.00	See Note-3: UC & Ref Size based on GUC / DOD Guidance.
73046	Elementary School - OCONUS	XX	SF	XX	See Note-1, Insufficient recent cost data
73046	Elementary School - OCONUS, Other Than Japan locations	XX	SF	XX	See Note-1, Insufficient recent cost data
73046	Junior High	XX	SF	XX	See Note-1. Insufficient recent cost data
73046	High	142,000	SF	XX	See Note-1, insufficient recent cost data.
74010	Auditorium, General Purpose	4,000	SF	XX	See Note-1. Insufficient recent cost data
74011	Bowling Center	7,800	SF	XX	See Note-1. Insufficient recent cost data
74012	Cafeteria	5,000	SF	XX	See Note-1. Insufficient recent cost data
74016	CDC-School Age, >6 years of age	XX	SF	XX	See Note-1. Insufficient recent cost data
74017	CDC-Preschool, 232 children, 0-6 yrs	23,000	SF	XX	See Note-1, Insufficient recent cost data
74021	Commissary	XX	SF	XX	See Note-1. Insufficient recent cost data
74022	Skill Development Center	XX	SF	XX	See Note-1. Insufficient recent cost data
74023	Credit Union	XX	SF	XX	See Note-1. Insufficient recent cost data
74024	Skill Development Ctr - automotive	XX	SF	XX	See Note-1. Insufficient recent cost data
74025	Education Center for 10,000-15,000 PN	XX	SF	XX	See Note-1. Insufficient recent cost data
74028	Physical Fitness Facility	62,000	SF	XX	See Note-1, Insufficient recent cost data
	Program Indoor Swimming Pool (CC74042) separately				
74030	Sports Pro Shop	XX	SF	XX	See Note-1. Insufficient recent cost data
74033	Army Community Service	XX	SF	XX	See Note-1. Insufficient recent cost data
74041	Main Library	XX	SF	XX	See Note-1. Insufficient recent cost data

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74047	Service Club	XX	SF	XX	See Note-1. Insufficient recent cost data
74048	Officer Open Dining Facility	XX	SF	XX	See Note-1. Insufficient recent cost data
74053	Main Exchange	XX	SF	XX	See Note-1. Insufficient recent cost data
74056	Exchange Service Outlet	XX	SF	XX	See Note-1. Insufficient recent cost data
74066	Youth Center, medium (105-135 PN)	XX	SF	XX	See Note-1. Insufficient recent cost data
74068	Recreation Center	XX	SF	XX	See Note-1. Insufficient recent cost data
74070	Indoor Roller Skating Rink	XX	SF	XX	See Note-1. Insufficient recent cost data
74072	25 meter Indoor Swimming Pool	XX	SF	XX	See Note-1 above, (6200 SF water area w/ancillary areas)
74075	Recreational Support Building	XX	SF	XX	See Note-1. Insufficient recent cost data
	PLAYGROUND for PPRESCHOOL CHILDREN, UNDER 6 YEARS of AGE				
75018	Small (126 children)	XX	SF	XX	See Note-1. Insufficient recent cost data
75018	Medium (232 Children)	XX	SF	XX	See Note-1. Insufficient recent cost data
75018	Large (338 Children)	XX	SF	XX	See Note-1. Insufficient recent cost data
	PLAYGROUND for SCHOOL AGE CHILDREN, 6 TO 10 YEARS				
75018	Small (105-135 children)	XX	SF	XX	See Note-1. Insufficient recent cost data
75018	Medium/Large (150-225 Children)	XX	SF	XX	See Note-1. Insufficient recent cost data
75018	Play Ground for Youth Center	XX	SF	XX	See Note-1. Insufficient recent cost data
75022	Multipurpose Athletics Field (360' x 160')	1	EA	1,177,200.00	Ref size & UC based on 1 project data in HII
75027	Running Track	1	EA	368,600.00	Ref size & UC based on 1 project data in HII
75030	Outdoor Swimming Pool	XX	SF	XX	See Note-1. Insufficient recent cost data
75061	Bleacher, Covered	XX	EA	XX	See CC 75061 under Range Complex above for UC
85210	Organizational Vehicle Parking	Varies	SY	0.00	See Note-1. Insufficient recent cost data
85218	Parking Garage, Multistoried	150,000	SF	57.00	See Note-3. Reference size & UC based on GUC/DoD UFC
	Assumes 425-450 SF/vehicle with turning radii and ramps.				
89120	Plant /Utilities Building	XX	SF	XX	Se Note-1, Insufficient recent cost data
	SPECIAL FOUNDATIONS				
	Piling, Treated Wood, 50' long, 12" butt	N/A	SF	41.00	See Note-2. Used FY18 PAX 3.2.2 UC escalated to 1 Oct 2018 for FY19 Projects
	Piling, Concrete, 14" square	N/A	SF	62.00	See Note-2. Used FY18 PAX 3.2.2 UC escalated to 1 Oct 2018 for FY19 Projects
	Piling, Concrete, 16" square	N/A	SF	64.00	See Note-2. Used FY18 PAX 3.2.2 UC escalated to 1 Oct 2018 for FY19 Projects
	Piling, Concrete, 18" diameter	N/A	SF	73.00	See Note-2. Used FY18 PAX 3.2.2 UC escalated to 1 Oct 2018 for FY19 Projects
	Piling, Steel H, 50' Long, HP 12x53	N/A	SF	50.00	See Note-2. Used FY18 PAX 3.2.2 UC escalated to 1 Oct 2018 for FY19 Projects
	Piling, Steel Pipe, 12" D, Conc. Filled	N/A	SF	61.00	See Note-2. Used FY18 PAX 3.2.2 UC escalated to 1 Oct 2018 for FY19 Projects

Legend: Note-1: No data or Not enough Usable Award Data since FY2013 to forecast UC
 Note-2: Last year's UC escalated with new Inflation Rate. Not enough Usable Award Data since FY2013 to forecast UC
 Note-3: UC & Ref Size based on GUC/DOD/Tri-Service Guidance.
 Note-4: The facilities shown were developed from the DD1391's shown on the FY19 thru FY21 FYDP.

UNIT COSTS For SUPPORT FACILITIES
PAX Newsletter 3.2.2, Part-2 dated 13 May 2018

APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).

NOTE: The Support Fac Unit Costs are for guidance only. Adjustment to these Unit Costss are allowed when local cost data are available with back-ups.

<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
	AIRFIELD RUNWAY (RW) - SLIP FORM CONC PVMT, Airports, UNREINFORCED, 5000 PSI, 12' PASS, Incl JOINTS, FINISHING & CURING			
11110 & X20	8" THICK (TH) PAVEMENT	1	SY	\$43.40
	10" THICK PAVEMENT	1	SY	\$52.00
	12" THICK PAVEMENT	1	SY	\$59.00
	16" THICK PAVEMENT	1	SY	\$78.00
	AIRFIELD RUNWAY - FIXED FORM PLAIN CEMENT CONC PVMT, Airports, UNREINFORCED, 4500 PSI, 12' PASS, INCLUDES JOINT, FINISHING, & CURING			
11110 & X20	12 " THICK PAVEMENT, Note: ADD \$14.45/SY For REINF STEEL BAR, 18 LBS/SY (A185)	1	SY	\$59.00
	14" THICK PAVEMENT, Note: ADD \$14.45 /SY For REINF STEEL BAR, 18 LBS/SY (A185)	1	SY	\$71.00
	16" THICK PAVEMENT, Note: ADD \$14.45/SY For REINF STEEL BAR, 18 LBS/SY (A185)	1	SY	\$78.00
	<u>ASHPHALT PAVING- PLANT MIX For HIGHWAYS & LARGE PAVED AREAS, WEARING COURSE</u>			
11110 & X20	3" THICK PVMT	1	SY	\$18.10
	AIRFIELD RUNWAY - LIGHTING, BI-DIRECTIONAL W/ SHALLOW INSERT BASE			
11110 & X20	RW CENTER LINE LIGHT, SEMI FLUSH, 200 W	1	EA	\$2,325.00
	RW CENTER LINE LIGHT, FLUSH, 200 W	1	EA	\$2,325.00
	RW EDGE & THRESHOLD LIGHT, 200 W, BI-DIRECTIONAL for Base Housing	1	EA	\$1,541.00
	RW EDGE & THRESHOLD LIGHT, 2-115 W, Bi-DIRECTIONAL for Base Housing	1	EA	\$2,055.00
	TOUCHDOWN ZONE LIGHT, 200 W, UNIDIRECTIONAL for Base Housing	1	EA	\$1,973.00
	THRESHOLD & APPROACH LIGHT, 200 W, UNIDIRECTIONAL for Base Housing	1	EA	\$1,016.00
	<u>AIRFIELD PVMT MARKINGS</u>			
11110	THERMOPLASTIC PVMT MARKINGS, RUNWAY w/24 LB GLASS BEADS Per 100 SF	1	SF	\$4.20
	PVMT MARKINGS, TAXIWAY, PAINTING WHITE OR YELLOW STRIPES	1	SF	\$1.30
	COMMUNICATIONS (COMM) DISTRIBUTION CABLE, CABLE SPLICING & TERMINATION - UNDERGROUND RESIDENTIAL DISTRIBUTION (URD) or SIMILAR			

UNIT COSTS For SUPPORT FACILITIES
PAX Newsletter 3.2.2, Part-2 dated 13 May 2018

APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).

NOTE: The Support Fac Unit Costs are for guidance only. Adjustment to these Unit Costss are allowed when local cost data are available with back-ups.

<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
13510	CABLE SPLICING, 5 kV, #6 STRANDED to #1 STRANDED, URD or SIMILAR	1	EA	\$341.00
	CABLE SPLICING, 15 kV, #6 STRANDED to #1 STRANDED, URD or SIMILAR	1	EA	\$411.00
	CABLE SPLICING, 25 kV, #6 STRANDED to #1 STRANDED, URD or SIMILAR	1	EA	\$443.00
13510	CABLE SPLICING, 5 kV, #1 STRANDED to #4/0 STRANDED, URD or SIMILAR	1	EA	\$378.00
	CABLE SPLICING, 15 kV, #1 STRANDED to #4/0 STRANDED, URD or SIMILAR	1	EA	\$460.00
	CABLE SPLICING, 25 kV, #1 STRANDED to #4/0 STRANDED, URD or SIMILAR	1	EA	\$468.00
13510	CABLE SPLICING, 5 kV, #4/0 STRANDED to 500 kcmil STRANDED, URD or SIMILAR	1	EA	\$400.00
	CABLE SPLICING, 15 kV, #4/0 STRANDED to 500 kcmil STRANDED, URD or SIMILAR	1	EA	\$455.00
	CABLE SPLICING, 25 kV, #4/0 STRANDED to 500 kcmil STRANDED, URD or SIMILAR	1	EA	\$670.00
13510	CABLE SPLICING, 5 kV, 500 kcmil STRANDED, URD or SIMILAR	1	EA	\$514.00
	CABLE SPLICING, 15 kV, 500 kcmil STRANDED, URD or SIMILAR	1	EA	\$644.00
	CABLE SPLICING, 25 kV, 500 lcmil STRANDED, URD or SIMILAR	1	EA	\$703.00
	CABLE SPLICING, 5 kV, 600 kcmil STRANDED, URD or SIMILAR	1	EA	\$535.00
	CABLE SPLICING, 15 kV, 600 kcmil STRANDED, URD or SIMILAR	1	EA	\$692.00
	CABLE SPLICING, 25 kV, 600 kcmil STRANDED, URD or SIMILAR	1	EA	\$752.00
13510	CABLE SPLICING, 5 kV, 750 kcmil STRANDED, URD or SIMILAR	1	EA	\$568.00
	CABLE SPLICING, 15 kV, 750 kcmil STRANDED, URD or SIMILAR	1	EA	\$719.00
	CABLE SPLICING, 25 kV, 750 kcmil STRANDED, URD or SIMILAR	1	EA	\$768.00
	CABLE SPLICING, 5 kV, 1000 kcmil STRANDED, URD or SIMILAR	1	EA	\$605.00
	CABLE SPLICING, 15 kV, 1000 kcmil STRANDED, URD or SIMILAR	1	EA	\$800.00
	CABLE SPLICING, 25 kV, 1000 kcmil STRANDED, URD or SIMILAR	1	EA	\$957.00
	<u>TERMINALE LUGS, SOLDERLESS</u>			
13510	TERMINAL LUGS, #16 to #10, SOLDERLESS	1	EA	\$15.70

UNIT COSTS For SUPPORT FACILITIES
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APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).
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	TERMINAL LUGS, #8 to #4, SOLDERLESS	1	EA	\$27.60
	TERMINAL LUGS, #2 to #1, SOLDERLESS	1	EA	\$35.70
13510	TERMINAL LUGS, 1/0 to 2/0, SOLDERLESS	1	EA	\$49.70
	TERMINAL LUGS, 3/0, SOLDERLESS	1	EA	\$66.00
	TERMINAL LUGS, 4/0, SOLDERLESS	1	EA	\$72.00
	TERMINAL LUGS, 250 kcmil, SOLDERLESS	1	EA	\$88.00
	TERMINAL LUGS, 500 kcmil, SOLDERLESS	1	EA	\$136.00
	TERMINAL LUGS, 750 kcmil, SOLDERLESS	1	EA	\$159.00
	<u>FIBER OPTIC CABLE, SPLICER BOX & TERMINATION BOX</u>			
13510	12 STRAND FIBER OPTIC CABLE w/ 1" PVC INNER DUCT RUN IN DUCTBANK	1	LF	\$2.30
	24 STRAND FIBER OPTIC CABLE w/ 1" PVC INNER DUCT RUN IN DUCTBANK	1	LF	\$2.60
	36 STRAND FIBER OPTIC CABLE w/ 1" PVC INNER DUCT RUN IN DUCTBANK	1	LF	\$2.90
	6 STRAND FIBER OPTIC SPLICE BOX, INCL BOX & 6 CABLE SPLICES	1	EA	\$453.00
	12 STRAND FIBER OPTIC SPLICE BOX, INCL BOX & 12 CABLE SPLICES	1	EA	\$546.00
	24 STRAND FIBER OPTIC SPLICE BOX, INCL BOX & 24 CABLE SPLICES	1	EA	\$739.00
	36 STRAND FIBER OPTIC SPLICE BOX, INCL BOX & 36 CABLE SPLICES	1	EA	\$938.00
	6 STRAND FIBER OPTIC TERMINATION BOX, INCL BOX & 6 CABLE CONNECTIONS	1	EA	\$579.00
	12 STRAND FIBER OPTIC TERMINATION BOX, INCL BOX & 12 CABLE CONNECTIONS	1	EA	\$662.00
	24 STRAND FIBER OPTIC TERMINATION BOX, INCL BOX W/ 2 SPLICE TRAYS & 24 CABLE CONNECTIONS	1	EA	\$888.00
	36 STRAND FIBER OPTIC TERMINATION BOX, INCL BOX & w/ 3 SPLICE TRAYS & 36 CABLE CONNECTIONS	1	EA	\$1,103.00
81160		75 kW	EA	\$56,050.00
		125 kW	EA	\$65,860.00
		200 kW	EA	\$85,750.00

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<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
	STANDBY GENERATOR, DIESEL (SDG) , 3 PHASE 4 WIRE, 277/480 VOLTS, INCL. BATTERY, CHARGER, FUEL	300 kW	EA	\$105,100.00
	TANK, MUFFLER & AUTO TXFR SWITCH (ATS), EXCL. CONDUIT, WIRING & CONC PAD	400 kW	EA	\$142,470.00
		500 kW	EA	\$176,710.00
		750 kW	EA	\$274,800.00
		1000 kW	EA	\$345,640.00
	SITE LIGHTING, UNDERGROUND DISTRIBUTION, EXCL. POLES & LIGHT FIXTURE COSTS			
81230	1" PVC CONDUIT, # 10- 3 STRAND COPPER WIRE, 150 LF DIRECT BURIAL, INCL EXCAVATION & BACKFILL	150	LF	\$2,325.00
	SITE LIGHTING W/ LIGHT POLE & LIGHT FIXTURE ASSEMBLY, EXCL UNDERGROUND DISTRIBUTION, WIRING, EXCAVATION & BACKFILL			
81230	20' ALUMINUM POLE, 400 WATT HIGH PRESSURE SODIUM (HPS)	1	EA	\$3,730.00
	40' ALUMINUM POLE, 1000 WATT HIGH PRESSURE SODIUM (HPS)	1	EA	\$6,487.00
	40' HIGH FIBERGLASS POLE, 1000 WATT HIGH PRESSURE SODIUM (HPS)	1	EA	\$5,325.00
	20' ALUMINUM POLE, 400 WATT METAL HALIDE (MH)	1	EA	\$3,676.00
	40' ALUMINUM POLE, 1000 WATT METAL HALIDE (MH)	1	EA	\$6,433.00
	40' HIGH FIBERGLASS POLE, 1000 WATT METAL HALIDE (MH)	1	EA	\$5,244.00
	OVERHEAD (OH) ELECTRIC LINES - INCL. COST OF WOOD POLES @ 250' SPACING, 3 PHASE 4 Wire ALUMINUM CONDUCTOR STEEL REINF			
81241	H-FRAME DISTRIBUTION LINES, 15-69 kV SHORT LINES w/ CROSS ARM & INSUL	1,000	LF	\$48,430.00
	OVERHEAD LINES BELOW 15 kV w/ CROSS ARMS & INSULATORS	1,000	LF	\$45,520.00
	U/G ELECTRIC LINES (DIRECT BURIAL (DB) - INCL. Cost of COPPER Service Entrance CABLE (SEU) CONDUCTOR, CHAIN EXCAVATOR to 3" and BACKFILL			
81242	# 1/0 -3/C, 600 Volt DB, SEU COPPER CONDUCTOR, EXCAV & BACKFILL	1	LF	\$460.00
	# 4/0 - 3/C, 600 Volt DB, SEU COPPER CONDUCTOR, EXCAV & BACKFILL	1	LF	\$556.00
	CABLE TERMINATORS - OUT DOOR SYSTEMS			
81242	CABLE TERMINATION, 15 kV, #1 SOLID to 4/0 STRANDED	1	EA	\$373.00
	CABLE TERMINATION, 15 kV, #2/0 SOLID to 350 KCMIL STRANDED	1	EA	\$406.00

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	CABLE TERMINATION, 15 kV, 400 KCMIL to 750 KCMIL STRANDED	1	EA	\$465.00
	CABLE SPLICING, 15 kV, UNDERGROUND RESIDENTIAL DISTRIBUTION (URD) CABLE or SIMILAR			
81242	CABLE SPLICING, URD or SIMILAR, #1 STRANDED to 4/0 STRANDED,	1	EA	\$460.00
	CABLE SPLICING, URD or SIMILAR, 4/0 STRANDED to 500 KCMIL STRANDED	1	EA	\$556.00
	UNDERGROUND (UGND) ELECTRIC DUCTBANKS - INCL Cost of EXCAVATION (EXCAV), CAST IN PLACE (CIP) CONC & BACKFILL to 3' DEEP			
81242	1-WAY-4" Diameter (DIA) PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$19.70
	2-WAY-4" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$34.60
	4-WAY-4" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$60.00
	6-WAY-6" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$139.00
81242	1-WAY-2" DIA RIGID GALVANIZED STEEL (RGS) ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$27.60
	1-WAY-3" DIA RGS, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$49.70
	1-WAY-4" DIA RGS, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$63.00
	1-WAY-5" DIA RGS, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$87.00
	1-WAY-6" DIA RGS, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$109.00
81242	2-WAY-2" DIA RGS, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$41.60
	2 WAY-3" DIA RGS, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$72.00
	2-WAY-4" DIA RGS, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$98.00
	2-WAY-5" DIA RGS, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$161.00
	2-WAY-6" DIA RGS, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$225.00
81242	3-WAY-2" DIA RGS, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$61.00
	3-WAY-3" DIA RGS, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$101.00
	3-WAY-4" DIA RGS, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$139.00
	3-WAY-5" DIA RGS, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$231.00
	3-WAY-6" DIA RGS, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$324.00

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81242	4-WAY-2" DIA RGS, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$79.00
	4-WAY-3" DIA RGS, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$129.00
	4-WAY-4" DIA RGS, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$181.00
	4-WAY-5" DIA RGS, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$302.00
	4-WAY-6" DIA RGS, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$427.00
81242	1-WAY-2" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$16.70
	1-WAY-3" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$19.40
	1-WAY-4" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$23.30
	1-WAY-5" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$27.10
	1-WAY-6" DIA PVC, ENCASED BURIAL, INCL EXCAV,CIP CONC & BACKFILL	1	LF	\$32.40
81242	2-WAY-2" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$25.90
	2-WAY-3" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$30.80
	2-WAY-4" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$37.30
	2-WAY-5" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$44.90
	2-WAY-6" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$56.00
81242	4-WAY-2" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$40.60
	4-WAY-3" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$48.60
	4-WAY-4" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$59.00
	4-WAY-5" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$71.00
	4-WAY-6" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$91.00
81242	6-WAY-4" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$90.00
	6-WAY-5" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$107.00
	6-WAY-6" DIA PVC, ENCASED BURIAL, INCL EXCAV, CIP CONC & BACKFILL	1	LF	\$144.00

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	ELECTRICAL (ELECT) UNDERGROUND (UGND) MANHOLES (MH), EXCL COST OF EXCAVATION, CIP CONC & BACKFILL			
81242	UGND HAND HOLES, 4' x 4' x 4' DEEP, PRECAST CONC w/ COVER, EXCL EXCAV, CIP CONC & BACKFILL	1	EA	\$2,973.00
	ELECT UGND MH, 6' x 10' x 7' DEEP, PRECAST w/ IRON RACKS & PULLING IRONS, C.I. FRAME & COVER	1	EA	\$12,540.00
	ELECT UGND MH, 6' x 8' x 7' DEEP, PRECAST w/ IRON RACKS & PULLING IRONS, C.I. FRAME & COVER	1	EA	\$11,250.00
81320	SUBSTATION, LOAD INTERRUPTER SWITCH, 600 AMP, 2 POSITION, 3 kVA & BELOW W/ CLF FUSES, 4.8 kV, 6000 AMP, NEMA 1 & GROUNDING LOOP	1	EA	\$32,870.00
	TRANSFORMERS (XFMR) - INCL COST of PAD MOUNTING w/ BOLLARDS AND GROUNDING LOOP			
81360	XFMR 150 kVA, OIL FILLED, 5 kV or 15 kV w/ TAPS, 277/480 V SECONDARY 3 PHASE	1	EA	\$20,650.00
	XFMR 225 kVA, OIL FILLED, 15 kV w/TAPS, 480 V SECONDARY 3 PHASE	1	EA	\$22,810.00
	XFMR 500 kVA, OIL FILLED, 15 kV W/ TAPS, 480 V SECONDARY 3 PHASE	1	EA	\$26,920.00
	XFMR 1,000 kVA, OIL FILLED, 15 kV W/ TAPS, 480 V SECONDARY 3 PHASE	1	EA	\$48,870.00
	XFMR 2,000 KVA, OILL FILLED, 15 kV W/ TAPS, 480 V SECONDARY 3 PHASE	1	EA	\$68,650.00
81360	XFMR 15 kVA, DRY TYPE, SINGLE PHASE, 240/480 V PRIMARY 120/240 V SECONDARY	1	EA	\$9,082.00
	XFMR 25 kVA, DRY TYPE, SINGLE PHASE, 240/480 V PRIMARY 120/240 V SECONDARY	1	EA	\$10,030.00
	XFMR 37.5 kVA, DRY TYPE, SINGLE PHASE, 240/480 V PRIMARY 120/240 V SECONDARY	1	EA	\$11,140.00
	XFMR 50 kVA, DRY TYPE, SINGLE PHASE, 240/480 V PRIMARY 120/240 V SECONDARY	1	EA	\$12,110.00
	XFMR 75 kVA, DRY TYPE, SINGLE PHASE, 240/480 V PRIMARY 120/240 V SECONDARY	1	EA	\$13,520.00
	XFMR 100 kVA, DRY TYPE, SINGLE PHASE, 240/480 V PRIMARY 120/240 V SECONDARY	1	EA	\$15,130.00
	XFMR 167 kVA, DRY TYPE, SINGLE PHASE, 240/480 V PRIMARY 120/240 V SECONDARY	1	EA	\$19,890.00
81360	XFMR, 75 kVA, DRY TYPE - VENTILATED, 3 PHASE 480 V PRIMARY 120/208 V SECONDARY	1	EA	\$10,810.00
	XFMR, 112.5 kVA, DRY TYPE - VENTILATED, 3 PHASE 480 V PRIMARY 120/208 V SECONDARY	1	EA	\$11,890.00
	XFMR, 150 kVA, DRY TYPE - VENTILATED, 3 PHASE 480 V PRIMARY 120/208 V SECONDARY	1	EA	\$13,080.00
	XFMR, 225 kVA, DRY TYPE - VENTILATED, 3 PHASE 480 V PRIMARY 120/208 V SECONDARY	1	EA	\$15,570.00
	XFMR, 500 kVA, DRY TYPE - VENTILATED, 3 PHASE 480 V PRIMARY 120/208 V SECONDARY	1	EA	\$24,120.00
	XFMR, 750 kVA, DRY TYPE - VENTILATED, 3 PHASE 480 V PRIMARY 120/208 V SECONDARY	1	EA	\$35,680.00

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	XFMR, 1000 kVA, DRY TYPE - VENTILATED, 3 PHASE 480 V PRIMARY 120/208 V SECONDARY	1	EA	\$39,790.00
81360	XFMR, 10 kVA, DRY TYPE On 36' POLE, 240/480 V PRIMARY 120/240 V SECONDARY	1	EA	\$4,838.00
	XFMR, 15 kVA, DRY TYPE On 36' POLE, 240/480 V PRIMARY 120/240 V SECONDARY	1	EA	\$5,406.00
	XFMR, 25 kVA, DRY TYPE On 36' POLE, 240/480 V PRIMARY 120/240 V SECONDARY	1	EA	\$6,352.00
81360	MAIN POWER (PWR) TRANSFORMER (XFMR) - INCL COST OF PAD MOUNTING (MTD) W/BOLLARDS & GROUNDING LOOP (GL)			
	MAIN PWR XFMR 46 kV, PAD MTD, w/ BOLLARDS & GL (1 MVA = 1,000 kVA)	1	KVA	\$36.60
	MAIN PWR XFMR 110 kV, PAD MTD, w/ BOLLARDS & GL (1 MVA = 1,000 kVA)	1	KVA	\$31.30
	MAIN PWR XFMR 161 kV, PAD MTD, W/ BOLLARDS & GL (1 MVA = 1,000 kVA)	1	KVA	\$29.20
	MAIN PWR XFMR 500 kV, PAD MTD, W/ BOLLARDS & GL (1 MVA = 1,000 kVA)	1	KVA	\$28.60
81360	TRANSFORMERS (XFMR) - INCL COST OF PAD MOUNTING (MTD) W/BOLLARDS AND GROUNDING LOOP (GL)			
	112.5 kVA XFMR, PAD MTD, 13,800 VOLTS TO 480/277 VOLTS W/ BOLLARDS & GL	1	EA	\$53,730.00
	150 kVA XFMR, PAD MTD, 13,800 VOLTS TO 480/277 VOLTS W/ BOLLARDS & GL	1	EA	\$54,600.00
	225 kVA XFMR, PAD MTD, 13,800 VOLTS TO 480/277 VOLTS W/ BOLLARD & GL	1	EA	\$62,170.00
	500 kVA XFMR, PAD MTD, , 13,800 VOLTS TO 480/277 VOLTS	1	EA	\$70,820.00
	STEAM (ST) CONDENSATE LINES, UNDERGROUND (UGND) - FROM CENTRAL PLANT TO BUILDING			
	COMMON CONDUIT, UGND - COMBINED STEAM (ST) SUPPLY & CONDENSATE (CNDS) RETURN (RTN) PIPES, INCL FITTINGS, TESTING & STEAM MANHOLES @ 250' O.C., 3' DEEP EXCAV & BACKFILL			
82210	2" ST & 1-1/4" CNDS RTN PIPE, PREFAB BLACK STEEL in 12-3/4" INSL CASE W/ MH @ 250' O.C.	1	LF	\$546.00
	1-1/2" ST & 1-1/2" CNDS RTN PIPE, PREFAB BLACK STEEL in 10-3/4" INSUL CASE W/ MH @ 250' O.C.	1	LF	\$541.00
	1-1/4" ST & 1-1/2" CNDS RTN PIPE, PREFAB BLACK STEEL in 10-3/4" INSUL CASE W/ MH @ 250' O.C.	1	LF	\$541.00
	1" ST & 1" CNDS RTN PIPE, PREFAB BLACK STEEL in 10-3/4" INSUL CASE W/ MH @ 250' O.C.	1	LF	\$541.00
	SINGLE CONDUIT - STEAM OR HIGH PRESSURE WATER PIPE, w/ INSULATED CASE ON SUPPORTS, INCL FITTINGS (FTG) & TESTING (TST)			
82210	1-1/4" ST PIPE, PREFAB BLACK STEEL in 12-3/4" INSUL CASE ON SUPPORTS, INCL FTG & TST	1	LF	\$336.00

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	1-1/2" ST PIPE, PREFAB BLACK STEEL in 12-3/4" INSUL CASE ON SUPPORTS, INCL FTG & TST	1	LF	\$336.00
	2" ST PIPE, PREFAB BLACK STEEL in 12-3/4" INSUL CASE ON SUPPORTS, INCL FTG & TST	1	LF	\$351.00
	2-1/2" ST PIPE, PREFAB BLACK STEEL in 12-3/4" INSUL CASE ON SUPPORTS, INCL FTG & TST	1	LF	\$373.00
	3" ST PIPE, PREFAB BLACK STEEL in 14" INSUL CASE ON SUPPORTS, INCL FTG & TST	1	LF	\$373.00
	4" ST PIPE, PREFAB BLACK STEEL in 14" INSUL CASE ON SUPPORTS, INCL FTG & TST	1	LF	\$406.00
	6" ST PIPE, PREFAB BLACK STEEL in 18" INSUL CASE ON SUPPORTS, INCL FTG & TST	1	LF	\$502.00
	CONCRETE TRENCH W/ COVER for STEAM AND HOT WATER PIPING			
82210	18" DEEP x 24" WIDE x 6" THICK WALL w/ CONC COVER	1	LF	\$155.00
	<u>HOT WATER LINES, UNDERGROUND</u>			
82220	COMMON CONDUIT - COMBINED HOT WATER (HW) SUPPLY & RETURN (RTN) PIPES, PREFABRICATED BLACK STEEL, INSULATED CASE, INCL FITTINGS (FTG), TESTING TST), EXCAVATION & BACKFILL			
	1" HW & 1" RET PIPE in 10-3/4" PREFAB BLACK STEEL INSUL CASE, INCL EXCAV, BKFL, FTG & TST	1	LF	\$400.00
	1-1/2" HW & 1-1/2" RET PIPE in 10-3/4" PREFAB BLACK STEEL INSUL CASE, INCL EXCAV, BKFL, FTG & TST	1	LF	\$400.00
	2" HW & 2" RET PIPE in 10-3/4" PREFAB BLACK STEEL INSUL CASE, INCL EXCAV, BKFL, FTG & TST	1	LF	\$406.00
	3" HW & 3" RET PIPE in 16" PREFAB BLACK STEEL INSUL CASE, INCL EXCAV, BKFL, FTG & TST	1	LF	\$460.00
	4" HW & 4" RET PIPE in 10" PREFAB BLACK STEEL INSUL CASE, INCL EXCAV, BKFL, FTG & TST	1	LF	\$605.00
	STEAM DISTRIBUTION MANHOLE (MH) , PREFAB STEEL			
82220	STEAM DISTRIBUTION MANHOLE (MH) , PREFAB STEEL, 8' X 6' HT, INCL MH VENT, PIPING, CONDUIT & LADDER	1	EA	\$18,380.00
	GAS PIPELINES for PLAIN & NATURAL GAS PIPING (PNG) - PLAIN END, TAR COATED (CTD) & WRAPPED, INCL EXCAVATION & BACKFILL			
82410	1" DIA. STEEL PIPE, SCHEDULE 40, PLAIN END, TAR CTD, INCL EXCAV & BKFL	1	LF	\$24.30
	2" DIA. STEEL PIPE, SCHEDULE 40, PLAIN END, TAR CTD, INCL EXCAV & BKFL	1	LF	\$29.20
	3" DIA. STEEL PIPE, SCHEDULE 40, PLAIN END, TAR CTD, INCL EXCAV & BKFL	1	LF	\$37.30
	4" DIA. STEEL PIPE, SCHEDULE 40, PLAIN END, TAR CTD, INCL EXCAV & BFFL	1	LF	\$49.70
	6" DIA. STEEL PIPE, SCHEDULE 40, PLAIN END, TAR CTD, INCL EXCAV & BKFL	1	LF	\$76.00
	8" DIA. STEEL PIPE, SCHEDULE 40, PLAIN END, TAR CTD, INCL EXCAV & BKFL	1	LF	\$108.00

UNIT COSTS For SUPPORT FACILITIES
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APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).

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<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
	12" DIA. STEEL PIPE, SCHEDULE 40, PLAIN END, TAR CTD, INCL EXCAV & BKFL	1	LF	\$240.00
	18" DIA. STEEL PIPE, SCHEDULE 40, PLAIN END, TAR CTD, INCL EXCAV & BKFL	1	LF	\$341.00
	24" DIA. STEEL PIPE SCHEDULE 40, PLAIN END, TAR CTS, INCL EXCAV & BKFL	1	LF	\$562.00
82410	4" DIA. STEEL PIPE, SCHEDULE 80, PLAIN END, TAR CTD, INCL EXCAV & BKFL	1	LF	\$93.00
	6" DIA. STEEL PIPE, SCHEDULE 80, PLAIN END, TAR CTD, INCL EXCAV & BKFL	1	LF	\$160.00
	SEWAGE LIFT STATION, PACKAGED (PCKG) SEWAGE LIFT STN, EXCL FENCING, EXTERNAL (EXT) PIPING (PNG) OR LIFT EQUIP BLDG			
83150	200,000 GPD, PCKG SEWAGE LIFT STN, EXCL FENCING OR EXT PNG	1	EA	\$333,560.00
	100 GPM, PCKG SEWAGE LIFT STN, EXCL FENCING OR EXT PNG	1	EA	\$290,630.00
	200 GPM, PCKG SEWAGE LIFT STN, EXCL FENCING OR EXT PNG	1	EA	\$373,020.00
	SEWERAGE EJECTOR PUMP - DUPLEX SYSTEM, W/ FIBERGLASS TANK, 135 GALLONS, OPERATING & LEVEL CONTROLS			
83150	174 GPM PUMP, 0.7 HP, 15' HEAD, 2" DISCHARGE, INCL FIBERGLASS TANK, CNTRLS, & TANK COVER	1	EA	\$4,298.00
	SANITARY SEWER - STORM DRAINAGE (SD) MANHOLES (MH), CONCRETE CAST IN PLACE (CIP), INCL FRAMES & COVERS			
83210	4' x 4', 8" THICK SD MH, 4' DEEP CIP CONC, INCL FRAMES & COVERS, EXCL FTG, EXCAV, BKFL	1	EA	\$4,483.00
	4' x 4', 8" THICK SD MH, 6' DEEP CIP CONC, INCL FRAMES & COVERS, EXCL FTG, EXCAV, BKFL	1	EA	\$6,136.00
	4' DIA, 8" THICK SD MH, 8' DEEP CIP CONC, INCL FRAMES & COVERS, INCL BASE EXCAV & BKFL	1	EA	\$9,947.00
	4' DIA, 8" THICK SD MH, > 8' DEEP CIP CONC, INCL FRAMES & COVERS, INCL BASE EXCAV & BKFL	1	VLF	\$1,076.00
	4' DIA, TO 8' DEEP PRECAST CONC SD MH, INCL FRAMES & COVERS, INCL BASE EXCAV & BKFL	1	VLF	\$778.00
	4' DIA, > 8' DEEP PRECAST CONC SD MH, INCL FRAMES & COVERS, INCL BASE EXCAV & BKFL	1	VLF	\$817.00
	CATCH BASIN (CB) - CONCRETE PRECAST, INCLUDE MANHOLE, FRAMES, & COVER, BASE EXCAV & BKFL			
83210	5' INTERNAL DIA, 4' DEEP PRECAST CONC CB, INCL BASE EXCAV & BKFL	1	EA	\$4,595.00
	5' INTERNAL DIA, 6' DEEP PRECAST CONC CB, INCL BASE EXCAV & BKFL	1	EA	\$5,055.00
	CURB INLET/ GUTTERMOUTH - INCL CURB INLET FRAME, GRATE & CURB BOX; EXCL FOOTING, CB EXCAV & BKFL & PIPING OF DRAIN			

UNIT COSTS For SUPPORT FACILITIES
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APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).

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<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
83210	24" x 36" LARGE, HEAVY DUTY CURB INLET, INCL FRAME, GRATE & CURB BOX, EXCL CB	1	EA	\$1,595.00
	STORMWATER DRAINAGE (SD) PONDS - INCLUDES FENCE, SEEDING SLOPES, PARTIAL LINER & EXCAVATION			
83210	1/8 ACRES, 5' DEEP SD POND, INCL SEEDING SLOPES, PARTIAL LINER & EXCAV	1	EA	\$23,890.00
	1/4 ACRES, 5' DEEP SD POND, INCL SEEDING SLOPES, PARTIAL LINER & EXCAV	1	EA	\$47,810.00
	3/8 ACRES, 5' DEEP SD POND, INCL SEEDING SLOPES, PARTIAL LINER & EXCAV	1	EA	\$71,900.00
	1/2 ACRES, 5' DEEP SD POND, INCL SEEDING SLOPES, PARTIAL LINER & EXCAV	1	EA	\$95,690.00
	WATER DISTRIBUTION LINES - CEMENT LINED DUCTILE IRON PIPE (DI), INCL MECHANICAL JOINT (MJ), EXCAVATION & BACKFILL, EXCL FITTINGS (FTGS)			
84210	4" DIA. 18' LENGTHS, CLASS 50 DI PIPE CEMENT LINED, INCL MJ, EXCAV, BKFL, EXCL FTGS	1	LF	\$47.60
	6" DIA. 18' LENGTHS, CLASS 50 DI PIPE CEMENT LINED, INCL MJ, EXCAV, BKFL, EXCL FTGS	1	LF	\$56.00
	10" DIA. 18' LENGTHS, CLASS 50 DI PIPE CEMENT LINED, INCL MJ, EXCAV, BKFL, EXCL FTGS	1	LF	\$90.00
	12" DIA. 18' LENGTHS, CLASS 50 DI PIPE CEMENT LINED, INCL MJ, EXCAV, BKFL, EXCL FTGS	1	LF	\$103.00
	18" DIA. 18' LENGTHS, CLASS 50 DI PIPE CEMENT LINED, INCL MJ, EXCAV, BKFL, EXCL FTGS	1	LF	\$166.00
	24" DIA. 18' LENGTHS, CLASS 50 DI PIPE CEMENT LINED, INCL MJ, EXCAV, BKFL, EXCL FTGS	1	LF	\$239.00
	WATER DISTRIBUTION LINES - FIBERGLASS (FBGLS) PLASTIC PIPE, FILAMENT WOUND (FW), GENERAL SVC, INCL. EXCAVATION & BACKFILL			
84210	2" DIA FBGLS PLASTIC PIPE, FILAMENT WOUND, GENERAL SVC, INCL EXCAV & BKFL	1	LF	\$44.90
	3" DIA FBGLS PLASTIC PIPE, FILAMENT WOUND, GENERAL SVC, INCL EXCAV & BKFL	1	LF	\$54.00
	4" DIA FBGLS PLASTIC PIPE, FILAMENT WOUND, GENERAL SVC, INCL EXCAV & BKFL	1	LF	\$63.00
	6" DIA FBGLS PLASTIC PIPE, FILAMENT WOUND, GENERAL SVC, INCL EXCAV & BKFL	1	LF	\$91.00
	10" DIA FBGLS PLASTIC PIPE, FILAMENT WOUND, GENERAL SVC, INCL EXCAV & BKFL	1	LF	\$168.00
	12" DIA FBGLS PLASTIC PIPE, FILAMENT WOUND, GENERAL SVC, INCL EXCAV & BKFL	1	LF	\$205.00
	WATER DISTRIBUTION LINES - PLASTIC PIPE, PVC, INCL EXCAVATION & BACKFILL			
84210	1" DIA PVC PIPE, SCHEDULE 40, INCL EXCAV & BKFL	1	LF	\$29.70
	2" DIA PVC PIPE, SCHEDULE 40, INCL EXCAV & BKFL	1	LF	\$39.50
	3" DIA PVC PIPE, SCHEDULE 40, INCL EXCAV & BKFL	1	LF	\$49.20
	4" DIA PVC PIPE, SCHEDULE 40, INCL EXCAV & BKFL	1	LF	\$57.00

UNIT COSTS For SUPPORT FACILITIES
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APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).

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<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
	6" DIA PVC PIPE, SCHEDULE 40, INCL EXCAV & BKFL	1	LF	\$84.00
	10" DIA PVC PIPE, SCHEDULE 40, INCL EXCAV & BKFL	1	LF	\$170.00
	12" DIA PVC PIPE, SCHEDULE 40, INCL EXCAV & BKFL	1	LF	\$199.00
	WATER DISTRIBUTION LINES - PLASTIC PIPE, PVC; INCL EXCAVATION & BACKFILL			
84210	1" DIA PVC PIPE, SCHEDULE 80, INCL EXCAV & BKFL	1	LF	\$31.30
	2" DIA PVC PIPE, SCHEDULE 80, INCL EXCAV & BKFL	1	LF	\$43.20
	3" DIA PVC PIPE, SCHEDULE 80, INCL EXCAV & BKFL	1	LF	\$55.00
	4" DIA PVC PIPE, SCHEDULE 80, INCL EXCAV & BKFL	1	LF	\$64.00
	1" DIA PVC PIPE, SCHEDULE 80, INCL EXCAV & BKFL	1	LF	\$104.00
	1" DIA PVC PIPE, SCHEDULE 80, INCL EXCAV & BKFL	1	LF	\$193.00
	1" DIA PVC PIPE, SCHEDULE 80, INCL EXCAV & BKFL	1	LF	\$229.00
	WATER DISTRBN LINE - PLASTIC PIPE, HIGH DENSITY POLYETHYLENE (HDPE), SINGLE (SGL) WALL, STRAIGHT (STR), WELDED, INCL EXCAV & BKFL			
84210	1" DIA HPDE PIPE, DR 11, SGL WALL, STR, BASED ON 40' LENGTH & 1 WELD/JOINT, INCL EXCAV & BKFL	1	LF	\$7.80
	2" DIA HPDE PIPE, DR 11, SGL WALL, STR, BASED ON 40' LENGTH & 1 WELD/JOINT, INCL EXCAV & BKFL	1	LF	\$9.20
	3" DIA HPDE PIPE, DR 11, SGL WALL, STR, BASED ON 40' LENGTH & 1 WELD/JOINT, INCL EXCAV & BKFL	1	LF	\$9.90
	4" DIA HPDE PIPE, DR 11, SGL WALL, STR, BASED ON 40' LENGTH & 1 WELD/JOINT, INCL EXCAV & BKFL	1	LF	\$11.90
	6" DIA HPDE PIPE, DR 11, SGL WALL, STR, BASED ON 40' LENGTH & 1 WELD/JOINT, INCL EXCAV & BKFL	1	LF	\$21.00
	10" DIA HPDE PIPE, DR 11, SGL WALL, STR, BASED ON 40' LENGTH & 1 WELD/JOINT, INCL EXCAV & BKFL	1	LF	\$37.80
	12" DIA HPDE PIPE, DR 11, SGL WALL, STR, BASED ON 40' LENGTH & 1 WELD/JOINT, INCL EXCAV & BKFL	1	LF	\$51.00
	18" DIA HPDE PIPE, DR 11, SGL WALL, STR, BASED ON 40' LENGTH & 1 WELD/JOINT, INCL EXCAV & BKFL	1	LF	\$93.00
	24" DIA HPDE PIPE, DR 11, SGL WALL, STR, BASED ON 40' LENGTH & 1 WELD/JOINT, INCL EXCAV & BKFL	1	LF	\$100.00
	36" DIA HPDE PIPE, DR 11, SGL WALL, STR, BASED ON 40' LENGTH & 1 WELD/JOINT, INCL EXCAV & BKFL	1	LF	\$120.00
	WATER PUMP, NONPOTABLE - FIRE PUMP, DIESEL (DSL), INCL. PUMP, CONTROLLER, FITTINGS (FTGS) & RELIEF VALVE (PRV), NO BLD			
84472	500 GPM - 4" DSL PUMP, 125 PSI, 78 HP, INCL CONTROLLER, FTGS, & PRV, NO PUMP STN BLD	1	EA	\$57,300.00
	1000 GPM - 4" DSL PUMP, 100 PSI, 89 HP, INCL CONTROLLER, FTGS, & PRV, NO PUMP STN BLD	1	EA	\$56,760.00
	2000 GPM - 6" DSL PUMP, 100 PSI, 167 HP, INCL CONTROLLER, FTGS, & PRV, NO PUMP STN BLD	1	EA	\$74,600.00

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<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
	2500 GPM - 8" DSL PUMP, 150 PSI, 365 HP, INCL CONTROLLER, FTGS, & PRV, NO PUMP STN BLD	1	EA	\$102,180.00
84472	1000 GPM- 5" ELECT PUMP, 100 PSI, 86 HP, 3500 RPM, INCL CONTRLR, FTGS, & PRV, NO PUMP STN BLD	1	EA	\$36,120.00
	2000 GPM- 6" ELECT PUMP, 100 PSI, 167 HP, 1770 RPM, INCL CONTRLR, FTGS, & PRV, NO PUMP STN BLD	1	EA	\$47,240.00
	WATER STORAGE TANK - ABOVEGROUND (AG) ELEVATED (ELEV) STEEL STORAGE (STOR) TANK, 100' HIGH TOWER, INCL SPREAD (SPRD) FOUNDATION (FDN), PAINTING (PNT), EXCL PIPES & PUMPS			
84610	50,000 GA, ELEV STEEL STOR TANK, 100' HIGH TOWER, INCL SPRD FDN, PNT, EXCL PIPES & PUMPS	1	EA	\$281,660.00
	100,000 GA, ELEV STEEL STOR TANK, 100' HIGH TOWER, INCL SPRD FDN, PNT, EXCL PIPES & PUMPS	1	EA	\$424,910.00
	150,000 GA, ELEV STEEL STOR TANK, 100' HIGH TOWER, INCL SPRD FDN, PNT, EXCL PIPES & PUMPS	1	EA	\$636,840.00
	250,000 GA, ELEV STEEL STOR TANK, 100' HIGH TOWER, INCL SPRD FDN, PNT, EXCL PIPES & PUMPS	1	EA	\$1,141,760.00
	500,000 GA, ELEV STEEL STOR TANK, 100' HIGH TOWER, INCL SPRD FDN, PNT, EXCL PIPES & PUMPS	1	EA	\$2,030,520.00
	750,000 GA, ELEV STEEL STOR TANK, 100' HIGH TOWER, INCL SPRD FDN, PNT, EXCL PIPES & PUMPS	1	EA	\$2,463,540.00
	1,000,000 GA, ELEV STEEL STOR TANK, 100' HIGH TOWER, INCL SPRD FDN, PNT, EXCL PIPES & PUMPS	1	EA	\$3,530,160.00
	GROUND STORAGE TANK (WATER) - ABOVEGROUND (AG) PRE-STRESSED CONCRETE TANK; INCL INTEGRAL FOUNDATION (FDN), EXCL PIPES AND PUMPS			
84610	100,000 GA, AG PRE-STRESSED CONC WATER TANK, INCL INTEGRAL FDN, EXCL PIPES & PUMPS	1	EA	\$235,700.00
	250,000 GA, AG PRE-STRESSED CONC WATER TANK, INCL INTEGRAL FDN, EXCL PIPES & PUMPS	1	EA	\$455,190.00
	500,000 GA, AG PRE-STRESSED CONC WATER TANK, INCL INTEGRAL FDN, EXCL PIPES & PUMPS	1	EA	\$740,090.00
	1,000,000 GA, AG PRE-STRESSED CONC WATER TANK, INCL INTEGRAL FDN, EXCL PIPES & PUMPS	1	EA	\$1,115,270.00
	2,000,000 GA, AG PRE-STRESSED CONC WATER TANK, INCL INTEGRAL FDN, EXCL PIPES & PUMPS	1	EA	\$1,628,310.00
	4,000,000 GA, AG PRE-STRESSED CONC WATER TANK, INCL INTEGRAL FDN, EXCL PIPES & PUMPS	1	EA	\$2,592,200.00
	RESERVOIR (RSVR), POTABLE WATER - GROUND LEVEL (GL) STEEL STORAGE (STOR) TANK, INCL 1' x 3' RING WALL FOUNDATION (FDN), EXCL PIPES & PUMPS			
84620	250,000 GA, STEEL STOR TANK, GL, INCL 1' x 3' RING WALL FDN, EXCL PIPES & PUMPS	1	EA	\$454,100.00
	500,000 GA, STEEL STOR TANK, GL, INCL 1' x 3' RING WALL FDN, EXCL PIPES & PUMPS	1	EA	\$637,910.00
	1,000,000 GA, STEEL STOR TANK, GL, INCL 1' x 3' RING WALL FDN, EXCL PIPES & PUMPS	1	EA	\$1,005,530.00
	2,000,000 GA, STEEL STOR TANK, GL, INCL 1' x 3' RING WALL FDN, EXCL PIPES & PUMPS	1	EA	\$1,592,630.00

UNIT COSTS For SUPPORT FACILITIES
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	4,000,000 GA, STEEL STOR TANK, GL, INCL 1' x 3' RING WALL FDN, EXCL PIPES & PUMPS	1	EA	\$3,238,230.00
84620	UNDERGROUND (UGND) STORAGE (STOR) TANK - FIBERGLASS (FBGLS) , DOUBLE (DBL) WALL, U.L. LISTED, INCLUDES MANWAYS, SLAB, & HOLD-DOWN STRAPS			
	600 GA, FBGLS DBL WALL STOR TANK, UGND, U.L. LISTED, INCL MANWAYS, SLAB & HOLD-DN STRPS	1	EA	\$12,980.00
	1,000 GA, FBGLS DBL WALL STOR TANK, UGND, U.L. LISTED, INCL MANWAYS, SLAB & HOLD-DN STRPS	1	EA	\$17,840.00
	2,500 GA, FBGLS DBL WALL STOR TANK, UGND, U.L. LISTED, INCL MANWAYS, SLAB & HOLD-DN STRPS	1	EA	\$28,540.00
	4,000 GA, FBGLS DBL WALL STOR TANK, UGND, U.L. LISTED, INCL MANWAYS, SLAB & HOLD-DN STRPS	1	EA	\$35,140.00
	6,000 GA, FBGLS DBL WALL STOR TANK, UGND, U.L. LISTED, INCL MANWAYS, SLAB & HOLD-DN STRPS	1	EA	\$47,470.00
	8,000 GA, FBGLS DBL WALL STOR TANK, UGND, U.L. LISTED, INCL MANWAYS, SLAB & HOLD-DN STRPS	1	EA	\$55,690.00
	10,000 GA, FBGLS DBL WALL STOR TANK, UGND, U.L. LISTED, INCL MANWAYS, SLAB & HOLD-DN STRPS	1	EA	\$65,410.00
	12,000 GA, FBGLS DBL WALL STOR TANK, UGND, U.L. LISTED, INCL MANWAYS, SLAB & HOLD-DN STRPS	1	EA	\$78,930.00
	15,000 GA, FBGLS DBL WALL STOR TANK, UGND, U.L. LISTED, INCL MANWAYS, SLAB & HOLD-DN STRPS	1	EA	\$98,930.00
	20,000 GA, FBGLS DBL WALL STOR TANK, UGND, U.L. LISTED, INCL MANWAYS, SLAB & HOLD-DN STRPS	1	EA	\$121,100.00
	ABOVE GROUND (AG) FUEL STORAGE (STOR) TANK - CONCRETE; INCLUDES PAD			
84620	500 GA, CONCRETE STOR TANK, ABOVE GROUND, INCL PAD	1	EA	\$15,130.00
	1,000 GA, CONCRETE STOR TANK, ABOVE GROUND, INCL PAD	1	EA	\$20,330.00
	2,000 GA, CONCRETE STOR TANK, ABOVE GROUND, INCL PAD	1	EA	\$26,060.00
	4,000 GA, CONCRETE STOR TANK, ABOVE GROUND, INCL PAD	1	EA	\$32,550.00
	8,000 GA, CONCRETE STOR TANK, ABOVE GROUND, INCL PAD	1	EA	\$49,410.00
	12,000 GA, CONCRETE STOR TANK, ABOVE GROUND, INCL PAD	1	EA	\$65,410.00
	ROADS/ LARGE PAVEMENTS - PLANT MIX ASPHALT CONCRETE (AC) SURFACE; EXCL EARTHWORK (CUT & FILL, CC 93410)			
85110	1-1/2" THICK PLANT MIX AC PAVING, WEARING COURSE, EXCL EARTHWORK (CUT & FILL, CC 93410)	1	SY	\$9.50
	2" THICK PLANT MIX AC PAVING, WEARING COURSE, EXCL EARTHWORK (CUT & FILL, CC 93410)	1	SY	\$12.40
	3" THICK PLANT MIX AC PAVING, WEARING COURSE, EXCL EARTHWORK (CUT & FILL, CC 93410)	1	SY	\$18.10

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	RECYCLED PLANT MIX BITUMINOUS CONCRETE (BIT CONC) PAVEMENT (PVMT)			
85110	PLANT MIXED BIT CONC, RECLAIMED PVMT IN STOCKPILE, 145 LB/CF	1	TON	\$67.00
	PLANT MIXED BIT CONC, RECYCLED PVMT OLD/NEW RATIO 70:30	1	TON	\$73.00
	UNREINFORCED CONC PAVEMENTS (PVMT), FIXED FORM, 12' PASS, INCL JOINTS, FINISHINGS, & CURING EXCL. EARTHWORK			
85110	6" THICK, UNREINF PVMT, 4500 PSI, FIXED FORM, 12' PASS, INCL JOINTS, FIN & CUR, EXCL EARTHWRK	1	SY	\$31.30
	8" THICK, UNREINF PVMT, 4500 PSI, FIXED FORM, 12' PASS, INCL JOINTS, FIN & CUR, EXCL EARTHWRK	1	SY	\$42.20
	10" THICK, UNREINF PVMT, 4500 PSI, FIXED FORM, 12' PASS, INCL JOINTS, FIN & CUR, EXCL EARTHWRK	1	SY	\$53.00
	12" THICK, UNREINF PVMT, 4500 PSI, FIXED FORM, 12' PASS, INCL JOINTS, FIN & CUR, EXCL EARTHWRK	1	SY	\$59.00
	16" THICK, UNREINF PVMT, 4500 PSI, FIXED FORM, 12' PASS, INCL JOINTS, FIN & CUR, EXCL EARTHWRK	1	SY	\$79.00
	REINFORCED CONC PAVEMENTS (PVMT), FIXED FORM, 12' PASS, INCL JOINTS, FINISHINGS, & CURING EXCL. EARTHWORK			
85110	6" THK, REINF CONC PVMT, 4500 PSI, FIXED FORM, 12' PASS, INCL JOINTS, FIN & CUR, EXCL EARTHWRK	1	SY	\$47.00
	8" THK, REINF CONC PVMT, 4500 PSI, FIXED FORM, 12' PASS, INCL JOINTS, FIN & CUR, EXCL EARTHWRK	1	SY	\$57.00
	10" THK, REINF CONC PVMT, 4500 PSI, FIXED FORM, 12' PASS, INCL JOINTS, FIN & CUR, EXCL EARTHWRK	1	SY	\$68.00
	CAST IN PLACE (CIP) CONCRETE CURB & GUTTER (C&G), STRAIGHT, WOOD FORM, NO EARTHWORK INCLUDED			
85110	6" HI CURB, 6" THK GUTTER, 24" WIDE, CIP CONC, STR WOOD FORMS, 0.055 C.Y. / LF, EXCL EARTHWRK	1	LF	\$30.30
	6" HI CURB, 6" THK GUTTER, 30" WIDE, CIP CONC, STR WOOD FORMS, 0.066 C.Y. / LF, EXCL EARTHWRK	1	LF	\$33.00
	PRECAST CONC CURBS 6" HI x 18" WIDE, NO EARTHWRK INCLUDED	1	LF	\$20.30
	BASE COURSE DRAINAGE LAYERS for ROADWAYS & LARGE PAVED AREAS - COMPACTED, EXCL EARTHWORK (ERTHWRK)			
85110	1-1/2" CRUSHED STONE BASE TO 4" DEEP, COMPACTED, INCL TRANS & EQPT, EXCL EARTHWRK	1	SY	\$6.80
	1-1/2" CRUSHED STONE BASE TO 6" DEEP, COMPACTED, INCL MATERIAL & TRANS, EXCL EARTHWRK	1	SY	\$9.50
	1-1/2" CRUSHED STONE BASE TO 8" DEEP, COMPACTED, INCL MATERIAL & TRANS, EXCL EARTHWRK	1	SY	\$12.40
	1-1/2" CRUSHED STONE BASE TO 12" DEEP, COMPACTED, INCL MATERIAL & TRANS, EXCL EARTHWRK	1	SY	\$17.80
	BANK RUN GRAVEL BASE COURSE, SPREAD & COMPACTED, INCL TRANS & EQPT, EXCL EARTHWRK			

UNIT COSTS For SUPPORT FACILITIES
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APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).

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<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
85110	BANK RUN GRAVEL BASE, 6" DEEP, SPREAD & COMPACTED, INCL TRANS & EQPT, EXCL ERTHWK	1	SY	\$6.50
	BANK RUN GRAVEL BASE, 9" DEEP, SPREAD & COMPACTED, INCL TRANS & EQPT, EXCL ERTHWK	1	SY	\$9.50
	BANK RUN GRAVEL BASE, 12" DEEP, SPREAD & COMPACTED, INCL TRANS & EQPT, EXCL ERTHWK	1	SY	\$12.40
	PLANT MIXED BITUMINOUS CONCRETE BASE COURSE, EXCL EARTHWORK			
85110	PLANT MIXED BITUMINOUS CONC BASE, 4" THICK, EXCL ERTHWK	1	SY	\$22.20
	PLANT MIXED BITUMINOUS CONC BASE, 6" THICK, EXCL ERTHWK	1	SY	\$31.90
	PLANT MIXED BITUMINOUS CONC BASE, 8" THICK, EXCL ERTHWK	1	SY	\$42.70
	PLANT MIXED BITUMINOUS CONC BASE, 10" THICK, EXCL ERTHWK	1	SY	\$53.00
	<u>SURFACE TREATMENTS</u>			
85110	TACK COAT, ELMUSION, 15 GALLONS/SY	1	SY	\$2.00
	SLURRY SEAL, TYPE II, 12 lb AGGREGATE/SY	1	SY	\$5.70
	PAVEMENT MARKINGS, ACRYLLIC WATERBORNE, 4" WIDE WHITE OR YELLOW, < 3000 LF	1	LF	\$0.40
	SIDEWALKS & WALKWAYS - PEDESTRIAN SIDEWALKS & WALKWAYS, WITH BASE COURSE. SEE CC 85110 FOR DRIVEWAYS & ROADS			
85220	4" THICK CAST IN PLACE (CIP) CONC, 6' x 6' -W 1.4 x W1.4 MESH, 3000 PSI, BROMMED FINISH, W/ BASE	1	SY	\$61.00
	2-1/2" ASPHALT CONCRETE W/ BASE	1	SY	\$20.30
	RAILROAD (RR) TRACKS W/TIES AND BALLAST FOR STANDARD GAUGE. TRACK IS DEFINED AS A SINGLE PAIR OF RAILS,			
86010	RR TRACKS, 100 LB Rail, LEVEL GRADE, W/ WOOD TIES, INCL BALLASTS, CLIPS, ANGLE BARS & BOLTS.	1	LF	\$278.00
	STORM WATER DRAINAGE SEWER/PIPING - INCL EXCAV & BKFL. TYPICALLY STORM WATER DRAINAGE SYSTEM WILL CONSISTS OF DRAINAGE INLET, RETENTION BASINS, PIPELINES, ACCESS MANHOLES, & OTHER COMPONENTS			
	CORRUGATED METAL PIPE (CMP), 16 GA, GALVANIZED (GALV) & BITUMINOUS (BITUMN) COATED (CTD)			
87110	8" DIA CMP PIPE, GALV & BITUMN CTD, 16 GA, w/ PAVED INVERT, 20' LONG, INCL EXCAV & BKFL	1	LF	\$26.40
	10" DIA CMP PIPE, GALV & BITUMN CTD, 16 GA, w/ PAVED INVERT, 20' LONG, INCL EXCAV & BKFL	1	LF	\$31.30
	12" DIA CMP PIPE, GALV & BITUMN CTD, 16 GA, w/ PAVED INVERT, 20' LONG, INCL EXCAV & BKFL	1	LF	\$37.30
	15" DIA CMP PIPE, GALV & BITUMN CTD, 16 GA, w/ PAVED INVERT, 20' LONG, INCL EXCAV & BKFL	1	LF	\$41.10

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<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
	18" DIA CMP PIPE, GALV & BITUMN CTD, 16 GA, w/ PAVED INVERT, 20' LONG, INCL EXCAV & BKFL	1	LF	\$46.50
	24" DIA CMP PIPE, GALV & BITUMN CTD, 16 GA, w/ PAVED INVERT, 20' LONG, INCL EXCAV & BKFL	1	LF	\$57.00
	30" DIA CMP PIPE, GALV & BITUMN CTD, 16 GA, w/ PAVED INVERT, 20' LONG, INCL EXCAV & BKFL	1	LF	\$83.00
	36" DIA CMP PIPE, GALV & BITUMN CTD, 16 GA, w/ PAVED INVERT, 20' LONG, INCL EXCAV & BKFL	1	LF	\$95.00
	60" DIA CMP PIPE, GALV & BITUMN CTD, 16 GA, w/ PAVED INVERT, 20' LONG, INCL EXCAV & BKFL	1	LF	\$190.00
	<u>NON-REINFORCED (NR) CONCRETE PIPE, EXTRA STRENGTH, INCL EXCAV & BKFL</u>			
87110	6" DIA NR CONC PIPE, EXTRA STRENGHT, B&S OR T&G JOINTS, INCL EXCAV & BKFL	1	LF	\$37.80
	10" DIA NR CONC PIPE, EXTRA STRENGHT, B&S OR T&G JOINTS, INCL EXCAV & BKFL	1	LF	\$40.60
	12" DIA NR CONC PIPE, EXTRA STRENGHT, B&S OR T&G JOINTS, INCL EXCAV & BKFL	1	LF	\$44.90
	18" DIA NR CONC PIPE, EXTRA STRENGHT, B&S OR T&G JOINTS, INCL EXCAV & BKFL	1	LF	\$61.00
	24" DIA NR CONC PIPE, EXTRA STRENGHT, B&S OR T&G JOINTS, INCL EXCAV & BKFL	1	LF	\$86.00
	36" DIA NR CONC PIPE, EXTRA STRENGHT, B&S OR T&G JOINTS, INCL EXCAV & BKFL	1	LF	\$168.00
	<u>REINFORCED CONCRETE PIPE (RCP), CLASS 3, INCL EXCAV, BKFL & GASKETS</u>			
87110	12" DIA RCP, 6' LENGHTS, CLASS-3, INCL EXCAV, BKFL & GASKETS	1	LF	\$53.00
	18" DIA RCP, 6' LENGHTS, CLASS-3, INCL EXCAV, BKFL & GASKETS	1	LF	\$68.00
	24" DIA RCP, 8' LENGHTS, CLASS-3, INCL EXCAV, BKFL & GASKETS	1	LF	\$91.00
	36" DIA RCP, 8' LENGHTS, CLASS-3, INCL EXCAV, BKFL & GASKETS	1	LF	\$167.00
	60" DIA RCP, 8' LENGHTS, CLASS-3, INCL EXCAV, BKFL & GASKETS	1	LF	\$330.00
	<u>SELECTIVE DEMOLITION (DEMO) OF WATER & SEWER PIPINGS & FITTINGS (FTG), EXCL EXCAV</u>			
87110	DEMO CONC PIPE, 42"- 48" DIA & FTG, EXCL EXCAV	1	LF	\$57.00
	DEMO CONC PIPE, 60"- 84" DIA & FTG, EXCL EXCAV	1	LF	\$69.00
	DEMO DUCTILE IRON PIPE, 6"- 12" DIA, EXCL EXCAV	1	LF	\$21.40
	DEMO DUCTILE IRON PIPE, 14"- 24" DIA, EXCL EXCAV	1	LF	\$31.30
	DEMO COPPER PIPE, 3/4" - 2" DIA, EXCL EXCAV	1	LF	\$1.90
	DEMO COPPER PIPE, 2 1/2" - 3" DIA, EXCL EXCAV	1	LF	\$4.90

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APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).
NOTE: The Support Fac Unit Costs are for guidance only. Adjustment to these Unit Costss are allowed when local cost data are available with back-ups.

<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
	<u>INDUSTRIAL CHAIN LINK FENCING & WALLS</u>			
	<u>GALVANIZED (GALV) STEEL FENCE, SCHEDULE (SCH) 40, INCL EXCAV & CONCRETE (CONC)</u>			
87210	4' HI, 9 GA GALV STEEL 3-STRANDS BARB WIRE, SCH 40, W/ 2" POSTS @ 10' OC, INCL EXCAV & CONC	1	LF	\$23.30
	6' HI, 9 GA GALV STEEL 3-STRANDS BARB WIRE, SCH 40, W/ 2" POSTS @ 10' OC, INCL EXCAV & CONC	1	LF	\$33.00
	8' HI, 9 GA GALV STEEL 3-STRANDS BARB WIRE, SCH 40, W/ 2" POSTS @ 10' OC, INCL EXCAV & CONC	1	LF	\$42.70
	10' HI, 9 GA GALV STEEL 3-STRANDS BARB WIRE, SCH 40, W/ 2" POSTS @ 10' OC, INCL EXCAV & CONC	1	LF	\$49.70
	FENCE TOPPING, STAINLESS STEEL, HELICAL RAZOR TAPE, 18" DIA x 18" SPACING	100	LF	\$219.00
	<u>ENTRANCE GATES, CHAIN LINK (CL) FENCE GATE, INDUSTRIAL</u>			
87250	CL FENCE GATE 4' WIDE, 6' HIGH, 9 GA WIRE, SCH-20, W/ 2" POSTS, INCL EXCAV & CONC	1	EA	\$427.00
	CL FENCE GATE 12' OPENING, SINGLE (SGL) SWING, 6' HIGH, MANUAL OPRN, INCL EXCAV & CONC,	1	EA	\$936.00
	MOTOR OPERATOR FOR 12' OPENING, 6' HIGH, SGL SWING CL GATE	1	EA	\$4,731.00
	CL FENCE GATE 24' OPNG, PAIR, DOUBLE (DBL) SWING, 6' HIGH, MANUAL OPRN, INCL EXCAV & CONC,	1	EA	\$1,838.00
	MOTOR OPERATOR FOR 24' OPENING, PAIR, 6' HIGH, DBL SWING CL GATE	1	EA	\$4,731.00
	CL FENCE GATE 36' OPENING, PAIR, DBL SLIDING, 6' HIGH, MANUAL OPRN, INCL EXCAV & CONC,	1	EA	\$2,298.00
	MOTOR OPERATOR FOR 36' OPENING, PAIR, 6' HIGH, DBL SLIDING GATE	1	EA	\$6,379.00
	<u>CHAIN LINK (CL) FENCE GATE, INDUSTRIAL, INCL EXCAV & CONC</u>			
87250	4' HIGH FENCE, 1-5/8" FRAME, GATE 3' WIDE, 6' HIGH, GALV STEEL, INCL EXCAV, IN CONC	1	EA	\$310.00
	6' HIGH FENCE, 1-5/8" FRAME, GATE 3' WIDE, 6' HIGH, GALV STEEL, INCL EXCAV, IN CONC	1	EA	\$443.00
	8' HIGH FENCE, 1-5/8" FRAME, GATE 3' WIDE, 6' HIGH, GALV STEEL, INCL EXCAV, IN CONC	1	EA	\$589.00
	GATE 10' OPENING, DOUBLE SWING GATE, 8' HIGH, INCL EXCAV, POSTS & HARDWARE IN CONC	1	EA	\$1,892.00
	GATE 24' WIDE, 8' HIGH, OVERHEAD SLIDE, CANTILEVER TYPE, INCL EXCAV, IN CONC	1	EA	\$9,785.00
	<u>SELECTIVE DEMOLITION - CHAIN LINK FENCE & GATES</u>			
87250	DEMO 3' - 4' HIGH FENCE	1	LF	\$2.20
	DEMO 5' HIGH FENCE	1	LF	\$2.40

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	DEMO 12' HIGH FENCE	1	LF	\$5.50
	DEMO 3' - 4' WIDE GATE	1	LF	\$73.00
88040	<u>AT/FP VEHICULAR BARRIER - SEE AT THE END</u>			
	FIRE HYDRANTS (FH), 2-WAY, 4-1/2" CUTOFF VALVE, INCL MECHANICAL JOINTS, EXCAV & BKFL			
89240	FIRE HYDRANT 4-6" DEPTH, 2-WAY, 4-1/2" CUT-OFF VALVE, INCL MECH JOINTS, EXCAV & BKFL	1	EA	\$5,569.00
	FIRE HYDRANT 6' DEPTH, 2-WAY, 4-1/2" CUT-OFF VALVE, INCL MECH JOINTS, EXCAV & BKFL	1	EA	\$5,812.00
	FIRE HYDRANT 8' DEPTH, 2-WAY, 4-1/2" CUT-OFF VALVE, INCL MECH JOINTS, EXCAV & BKFL	1	EA	\$6,082.00
	<u>SITE CLEARING & GRADING - CLEARING & GRUBBING</u>			
93210	BRUSH AND STUMP, SURFACE ITEM CLEARING	1	SY	\$1.70
	CLEAR & GRUB, LIGHT TREES TO 6" DIA - CUT, CHIP & HAUL	1	ACRE	\$5,475.00
	CLEAR & GRUB, MEDIUM TREES TO 12" DIA, CUT, CHIP & HAUL	1	ACRE	\$7,840.00
	CLEAR & GRUB, HEAVY TREES TO 24" DIA, CUT, CHIP & HAUL	1	ACRE	\$18,390.00
	GRUB STUMPS & REMOVE, TREES TO 12" DIA	1	ACRE	\$6,033.00
	<u>SITE CLEARING & GRADING - GRADING</u>			
93210	ROUGH GRADING, DUMPED MATERIAL SPREAD BY DOZER, NO COMPACTION	1	LINEAR CY	\$2.70
	FINE GRADING, GRANULER BUBBASE FOR PAVING, +/- 1" COMPACTION, 3 PASSES W/ DOZER, 6" LIFTS	1	SY	\$2.30
	<u>SITE CLEARING & GRADING - BORROW, INCL LOAD AT PIT & HAUL, 2 MILES ROUNFD TRIP, NO COMPACTION</u>			
93210	FLY ASH, SPREAD w/ 200 HP DOZER, INCL LOAD AT PIT & HAUL 2 MI ROUND TRIP, NO CMPCT	1	CY	\$35.10
	BANK RUN GRAVEL, SPREAD w/ 200 HP DOZER, INCL LOAD AT PIT & HAUL 2 MI ROUND TRIP, NO CMPCT	1	CY	\$44.90
	SAND, SPREAD w/ 200 HP DOZER, INCL LOAD AT PIT & HAUL 2 MI ROUND TRIP, NO CMPCT	1	CY	\$64.00
	GRAVEL, SPREAD w/ 200 HP DOZER, INCL LOAD AT PIT & HAUL 2 MI ROUND TRIP, NO CMPCT	1	CY	\$37.80
	COMMON FILL, SPREAD w/ 200 HP DOZER, INCL LOAD AT PIT & HAUL 2 MI ROUND TRIP, NO CMPCT	1	CY	\$31.90
	SILT CLAY, SPREAD w/ 200 HP DOZER, INCL LOAD AT PIT & HAUL 2 MI ROUND TRIP, NO CMPCT	1	CY	\$18.30

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	<u>LANDSCAPE AND PLANTING</u>			
	<u>SOIL PREPARATION - TOP SOIL</u>			
93220	MIX & SPREAD CONDITIONED SOIL, SPREAD 4" DEEP BY HAND	1	SY	\$9.90
	SPREAD FERTILIZER, 0.2#/SY BY TRACTOR SPREADER	1,000	SF	\$10.10
	HAUL & SPREAD TOP SOIL, TRUCK DUMPED, INCL MATERIAL, TRANSPORT & PLACEMENT	1	CY	\$7.50
	STRIP TOPSOIL & STOCKPILE ON SITE, 6" DEEP BY 200 HP DOZER, 200' HAUL	1	SY	\$0.50
	<u>SOIL PREPARATION - MULCHING</u>			
93220	HAY, 1" DEEP, POWER MULCHER, LARGE AREA	1,000	SY	\$72.00
	PEAT MOSS, 1" DEEP, TRACTOR SPREADER	1,000	SY	\$378.00
	WOOD CHIPS, 2" DEEP, SKID STEER LOADER	1,000	SY	\$362.00
	WOOD CHIPS, 2" DEEP, HAND SPREAD, SMALL AREA	1	SY	\$4.40
	<u>LANDSCAPE & PLANTING - GRASS</u>			
93220	SEEDING - TALL FESCUE, 5.5 LB/1000 SF, TRACTOR SPREADER	1,000	SF	\$33.60
	SEEDING - BLUE GRASS, 4LB/1000 SF, HYDRO OR AIR SEEDING W/ FERTILIZER	1,000	SF	\$64.00
	SODDING - 1" DEEP BLUEGRASS SOD ON LEVEL GROUND	1,000	SF	\$600.00
	<u>LANDSCAPE & PLANTING - PLANTING BED PREPARATION</u>			
93220	EXCAVATE PLANTING PIT, SANDY SOIL, 1/2 CY, BACKHOE	1	CY	\$11.40
	MIX PLANTING SOIL, INCLUDES LOAM, SKID STEER LOADER	1	CY	\$69.00
	REMOVE SOD, ARTICULATED LOADER	1	SY	\$0.70
	<u>LANDSCAPE & PLANTING - GROUND COVER</u>			
93220	PLANTAIN LILY (Hemerocallis Hybrids), ZONE 4, CONTAINER, 1 QUART	1	EA	\$33.00
	MOSS OR CREEPING PHLOX (Phlox Subulata), ZONE 4, CONTAINER, 1 GALLON	1	EA	\$33.00
	STONECROP (Sedum), ZONE 4, CONTAINER, 1 GALLON	1	EA	\$18.60

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	<u>LANDSCAPE & PLANTING - SHRUBS, BALLED & BURLAPED (B&B)</u>			
93220	AZALEA EVERGREEN HYBRIDS, ZONE 6, CONTAINER BALLED & BURLAPED, 3 GALLON	1	EA	\$22.20
	COMMON BOXWOOD (Buxus Sempervirens), ZONE 5, CONTAINER BALLED & BURLAPED, 18" TO 24"	1	EA	\$58.00
	WINGED BURNING BUSH (Eunymus Alatus), ZONE 4, CONTAINER BALLED & BURLAPED, 18" - 24"	1	EA	\$30.30
	BLUE HOLLY (Ilex Meserve Blue Holly Hybr), ZONE 5, CONTAINER BALLED & BURLAPED, 18" - 24"	1	EA	\$30.80
	PJM RHODODENDRON, ZONE 4, CONTAINER BALLED & BURLAPED, 18" - 24"	1	EA	\$51.00
	<u>LANDSCAPE & PLANTING - DECIDUOUS TREES</u>			
93220	RED MAPLE (Acer Rubrum), ZONE 4, CONTAINER BALLED & BURLAPED, 1-1/2" To 2" CALIPER	1	EA	\$259.00
	AMERICAN BEECH (Fagus Grandiflora), ZONE 3, CONTAINER B&B, 1-1/2" To 1-3/4" CALIPER	1	EA	\$324.00
	LOMBARDY POPLAR (Poplus Nigra Italica), ZONE 4, CONTAINER BALLED & BURLAPED, 5 GALLON	1	EA	\$30.30
	RED OAK (Quercus Rubra), ZONE 4, CONTAINER BALLED & BURLAPED, 5 GALLON	1	EA	\$36.20
	<u>LANDSCAPE - SUBSURFACE DRIP IRRIGATION (SDI)</u>			
93220	SDI , LOOPED GRID, REGULAR AREA, LARGE LINE, HAND BURY, PRESSURE COMP PREINSERTED EMITTER	1	LF	\$1.00
	SDI - IRREGULAR IRRIGATED AREA, HAND BURY, PRESSURE COMP PREINSERTED EMITTER IN TRENCH	1	LF	\$0.50
	UNDERGROUND SPRINKLERS IRRIGATION FOR 9 HOLE GOLF COURSE w/ FULLY AUTOMATIC SYS	1	EA	\$269,230.00
	UNDERGROUND SPRINKLERS IRRIGATION, RESIDENTIAL SYSTEM FOR LAWNS, 1-1/2" SUPPLY	1	SF	\$1.60
	DEMOLITION W/ DISPOSAL, BUILDING - INCL 20 MILE HAUL, EXCL FOUNDATION DEMO, HAZARDOUS MATERIAL DEMO, SALVAGE/RECYCLE & DUMP FEES. VOLUME (CF) IS THE VOLUME OF THE ENTIRE BUILDING			
93310	DEMO CONCRETE STRUCTURE (LARGE URBAN PROJECT); CF IS THE VOLUME OF THE ENTIRE BLDG	1	CF	\$0.60
	DEMO STEEL FRAME BUILDING - SMALL OR SINGLE BLDG; CF IS THE VOLUME OF THE ENTIRE BLDG	1	CF	\$0.50
	MASONRY OR WOOD FRAME - SMALL OR SINGLE; CF IS THE VOLUME OF THE ENTIRE BLDG	1	CF	\$0.50
	SELECTIVE DEMOLITION - BUILDING. EXCL DISPOSAL COST, RUBBISH HANDLING COSTS, SALVAGE & DUMP FEES			
93310	DEMO CONC FLOOR SLAB ON GRADE, PLAIN CONC, TO 6" THK, EXCL DISP, SALVAGE & DUMP COSTS	1	SF	\$8.00
	GUTTING COMMERCIAL BLDG. INTERIOR, NO HAZARDOUS MATERIAL DEMO OR DUMPSTER FEES	1	SF	\$12.30

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	LEAD BASED PAINT (LBP) REMOVAL BY CHEMICALS & DISPOSAL, CABINETS & WALLS SIMPLE DESIGN	1	SF	\$19.20
	NOTE: LBP IS NOT REQUIRED TO BE ABATED PRIOR TO OR AS A PART OF THE BLDG DEMOLITION, UNLESS SPECIFICALLY REQUIRED IN COMPLIANCE WITH EM 385-1-1. UNLESS OTHERWISE RESTRICTED, MATERIALS COATED W/ LBP MAY BE PLACES IN THE LANDFILL.			
	<u>RUBBISH HANDLING- DISPOSAL COST.</u>			
93310	DUMPSTER FEE, AVERAGE OF ALL SIZES (Note: TO BE ADD TO DEMO COST)	1	TON	\$115.00
	RUBBISH HANDLING, 50' HAUL, INCL LOADING, HAUL TO CHUTE & DUMPING TO CHUTE	1	CY	\$44.30
	SELECTIVE BUILDING MATERIAL RECYCLE, INCL SALVAGE LABOR			
93310	SALVAGE WOOD FLOOR, INCL SALVAGE LABOR FOR DENAILING & PACKAGING	1	SF	\$5.90
	SALVAGE CARPET, INCL SALVAGE LABOR	1	SF	\$0.50
	<u>DEMOLITION - PAVEMENTS. REMOVE PAVEMENT & CURB, EXCL HAULING & DISPOSAL FEES</u>			
93310	DEMO & REMOVE CONC PVMT & CURB, TO 6" THK, MESH REINF, EXCL HAULING & DISPOSAL FEE	1	SY	\$18.30
	DEMO & REMOVE W/ BACKHOE PLAIN CONC, 7" To 24" THK, EXCL HAULING & DISPOSAL FEE	1	CY	\$141.00
	DEMO & REMOVE ROD REINF CONC, 7" To 24", EXCL HAULING & DISPOSAL FEE	1	CY	\$194.00
	DEMO & REMOVE BITUMINOUS PVMT, TO 3" THK, EXCL HAULING & DISPOSAL FEE	1	SY	\$6.80
	REMOVE PLAIN CONC CURBS, EXCL HAULING & DISPOSAL FEE	1	LF	\$6.20
	DEMO & REMOVE BITUMINOUS SIDEWALK, 2-1/2" THK, EXCL HAULING & DISPOSAL FEE	1	SY	\$6.90
	MINOR SITE DEMO, EXCL HAULING & DISPOSAL FEE			
93310	DEMO & REMOVE PLAIN CONC SLAB ON GRADE, EXCL HAULING & DISPOSAL FEE	1	SY	\$18.50
	DEMO & REMOVE ROD REINF CONC SLAB ON GRADE, 8" THK, EXCL HAULING & DISPOSAL FEE	1	CY	\$239.00
	DEMO & REMOVE PLAIN CONC, 4" THK, EXCL HAULING & DISPOSAL FEE	1	SY	\$13.80
	CUT AND FILL - BCY = BANKED CUBIC YARDS, ECY = EMBANKMENT CY, LCY = LOOSE CY			
	<u>GRADING, COMMON EARTH:</u>			
93410	FINE GRADING FOR SMALL IRREGULAR AREAS, TO 15,000 SY	1	SY	\$3.40

UNIT COSTS For SUPPORT FACILITIES
PAX Newsletter 3.2.2, Part-2 dated 13 May 2018

APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).

NOTE: The Support Fac Unit Costs are for guidance only. Adjustment to these Unit Costss are allowed when local cost data are available with back-ups.

<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
	FINE GRADING FOR ROADWAYS, BASE OR LEVELLING COURSE, LARGE AREA 6,000 SY OR MORE	1	SY	\$1.10
	SPREAD FILL FILL FROM STOCKPILE W/ FRONT LOADER, 200 H.P DOZER, TO 300' HAUL, NO COMPACTION	1	LCY	\$6.40
	<u>CUT AND FILL: BCY = BANKED CUBIC YARDS, ECY = EMBANKMENT CY, LCY = LOOSE CY</u>			
	EXCAVATION, COMMON EARTH:			
93410	EXCAVATION W/ 105 H.P. BULK DOZER, OPEN SITE 150' HAUL	1	BCY	\$6.40
	EXCAVATION W/ 300 H.P. BULK DOZER, OPEN SITE 150' HAUL	1	BCY	\$4.20
	EXCAVATION W/ 700 H.P. BULK DOZER, OPEN SITE 150' HAUL	1	BCY	\$2.20
	EXCAVATION TRENCH, 18" WIDE, 6' DEEP, OPEN SITE, BY CHAIN TRENCHER, 12 HP	1	BCY	\$1.50
	EXCAVATION TRENCH BY HAND W/ PICK & SHOVEL, 2' TO 6' DEEP, HEAVY SOIL, NO DEWATERING	1	BCY	\$133.00
93410	HAUL BY 8 CY TRUCK, CYCLE 6 MILES AT 30 MPH, 10 MIN WAIT-LOAD-UNLOAD, NO LOADING EQUIP	1	LCY	\$6.20
	HAUL BY 8 CY TRUCK, CYCLE 4 MILES AT 30 MPH, 10 MIN WAIT-LOAD-UNLOAD, NO LOADING EQUIP	1	LCY	\$5.00
	HAUL BY 8 CY TRUCK, CYCLE 4 MILES AT 30 MPH, 15 MIN WAIT-LOAD-UNLOAD, NO LOADING EQUIP	1	LCY	\$6.40
	HAUL BY 12 CY TRUCK, CYCLE 10 MILES AT 30 MPH, 25 MIN WAIT-LOAD-UNLOAD, NO LOADING EQUIP	1	LCY	\$12.00
	HAUL BY 16.5 CY TRUCK, CYCLE 10 MILES AT 30 MPH, 30 MIN WAIT-LOAD-UNLOAD, NO LOADING EQUIP	1	LCY	\$10.10
	HAUL BY 20 CY TRUCK, CYCLE 8 MILES AT 30 MPH, 30 MIN WAIT-LOAD-UNLOAD, NO LOADING EQUIP	1	LCY	\$7.60
	HAUL BY 12 CY TRUCK, EXCAVATED OR BORROW MATERIAL, 2 MILE ROUND-TRIP, 2.2 LOADS/HR	1	LCY	\$10.10
93410	BACKFILL & COMPACTION, TRENCH 6" TO 12" LIFTS, DOZER BKFL, CMPCT W/ SHEEPSFOOT ROLLER	1	ECY	\$5.00
	BACKFILL & COMPACTION, DOZER BKFL, ROLLER CMPCT IN 12" LAYERS	1	ECY	\$8.00
	BACKFILL & COMPACTION, DOZER BKFL, CMPCT W/ VIBRATING ROLLER	1	ECY	\$4.60
	BACKFILL & COMPACTION, BY HAND, HEAVY SOIL	1	LCY	\$58.00
93410	DRILLING & BLASTING, HARD ROCK, UPTO 1500 CY, MACHINE DRILL, DEEP HOLE METHOD	1	BCY	\$81.00
	RIP SHALE- MEDIUM HARD, BY 180 H.P REAR RIPPER & LOAD	1	BCY	\$64.00
88040	<u>AT/FP VEHICULAR BARRICADES</u>			

UNIT COSTS For SUPPORT FACILITIES
PAX Newsletter 3.2.2, Part-2 dated 13 May 2018

APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).

NOTE: The Support Fac Unit Costs are for guidance only. Adjustment to these Unit Costss are allowed when local cost data are available with back-ups.

<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
	Barrier Standards			
	SD-STD-02.01 specifies perpendicular barrier impact by a 15,000 lb. (6810 kg) vehicle "K" indicates the Dept of State certified barrier's maximum vehicle impact speed rating "L" indicates the test vehicle's distance of penetration upon impact with barrie			
	K12 = 50 mph (88 kph); L3 = 3'-0" (915 mm) K8 = 40 mph (65 kph) K4 = 30 mph (48 kph)			
	Note: Electrical connection costs are only included up to five feet from the unit. Additional electrical power requirements to be added separately. All active fixed barriers with a remote control panel include costs for barrier installation, safety loop, traffic arm, & traffic lights. Costs for CCTV, Cameras, Alarms, ETC not included.			
	CONCRETE PLANTER - VEHICLE BARRIER, STOPS 4,000 LB VEHICLES AT 40 MPH (K-8 BARRIER)			
88040	CONC PLANTER, ROUND, EXPOSED AGGR FINISH, 36" DIA x 30" HIGH, NO FILL MATERIAL	1	EA	\$919.00
	CONC PLANTER, RECTANGULAR, EXPOSED AGGR FINISH, 96" L x 24" W x 36" H, NO FILL MATERIAL	1	EA	\$1,216.00
	CONC PLANTER, ROUND, EXPOSED AGGR FINISH, 84" DIA x 36" HIGH, NO FILL MATERIAL	1	EA	\$1,838.00
	CONC BARRIER, DECORATIVE GEOMETRIC DESIGN, 96" L x 24" W x 36" H, NO FILL MATERIAL	1	EA	\$1,919.00
	GLASS FIBER REINFORCED CONCRETE SECURITY BARRIERS (GFRC) , STOPS 4,000 LB VEHICLE AT 40 MPH			
88040	CONC FILLED GFRC, DECORATIVE IMPALER, 10' SECTION, INCL SITE PREPRATION ON BARE GROUND	1	EA	\$3,433.00
	CONC FILLED GFRC, DECORATIVE IMPALER, 12' SECTION, INCL SITE PREPRATION ON BARE GROUND	1	EA	\$4,000.00
	GFRC DECORATIVE JERSEY BARRIER COVER, 12' SECTION, EXCL FILLING MATERIALS (SOIL)	1	EA	\$1,730.00
	CONC FILLED PAINTED PIPE BOLLARD, 8' L x 4' D HOLE, 8" DIAMETER	1	EA	\$1,298.00
	CRASH BARRIERS, STOPS 15000 LB VEHICLE @ 50 MPH, INCL ALL LABOR, MATERIAL & EQUIP (LME) FOR COMPLETE INSTALLATION			
88040	20' WIDE DROP ARM CRASH BARRIER, INCL ALL LME FOR COMPL INSTALLATION	1	EA	\$83,800.00
	24' WIDE DROP ARM CRASH BARRIER, INCL ALL LME FOR COMPL INSTALLATION	1	EA	\$111,900.00
	12' WIDE PORTABLE WEDGE CRASH BARRIER, INCL ALL LME FOR COMPL INSTALLATION	1	EA	\$140,550.00
	20' WIDE SLIDING ROLLER CRASH BARRIER, INCL ALL LME FOR COMPL INSTALLATION	1	EA	\$256,790.00
	20' WIDE SLIDING CANTILEVER CRASH BARRIER, INCL ALL LME FOR COMPL INSTALLATION	1	EA	\$256,790.00

UNIT COSTS For SUPPORT FACILITIES
PAX Newsletter 3.2.2, Part-2 dated 13 May 2018

APPENDIX A - SUPPORT FACILITIES UNIT COST TABLE (PART - II, Support Facilities).
NOTE: The Support Fac Unit Costs are for guidance only. Adjustment to these Unit Costss are allowed when local cost data are available with back-ups.

<u>CAT CODE</u>	<u>ITEM</u>	<u>QTY</u>	<u>UNIT</u>	<u>UNIT COST (\$/UNIT)</u>
	RAISED BOLLARD CRASH BARRIER, INCL ALL LABOR, MATERIAL & EQUIP (LME) FOR COMPLETE INSTALLATION			
88040	10' WIDE, RAISED BOLLARD CRASH BARRIER, STANDARD POWER, INCL ALL LME FOR COMPL INSTAL	1	EA	\$50,600.00
	12' WIDE, RAISED BOLLARD CRASH BARRIER, STANDARD POWER, INCL ALL LME FOR COMPL INSTAL	1	EA	\$57,840.00
	10' WIDE, RAISED BOLLARD CRASH BARRIER, SOLAR POWER, INCL ALL LME FOR COMPL INSTAL	1	EA	\$61,630.00
	12' WIDE, RAISED BOLLARD CRASH BARRIER, SOLAR POWER, INCL ALL LME FOR COMPL INSTAL	1	EA	\$68,650.00
	INGROUND TIRE SHREDDER, 15' WIDE, INCL ALL LME FOR COMPL INSTALLATION	1	EA	\$53,960.00

APPENDIX C (UFC 3-701-01, Table 4-2), PAX Newsletter 3.2.2, dated 30 May 2018
TRI-SERVICE MILITARY CONSTRUCTION PROGRAM (MCP) INDEX FOR FY 2019-23 PROGRAMS
 Based on the Inflation Guidance for FY 2019 President's Budget Submission,
 Published by by OUSD (Comptroller) on 22 Dec 2017

<u>FISCAL YEAR (FY)</u>	<u>DATES</u>	<u>INDEX</u>	<u>ESCALATION PERCENTAGE FOR FISCAL YEAR</u>
FY 2017	1-Oct- 2016 -----	2810	----- FY17 (1.8%)
	1-Jan- 2017 -----	2823	
	1-Apr- 2017 -----	2836	
	1-Jul- 2017 -----	2849	
FY 2018	1-Oct- 2017 -----	2861	----- FY18 (1.9%)
	1-Jan- 2018 -----	2875	
	1-Apr- 2018 -----	2888	
	1-Jul- 2018 -----	2902	
FY 2019	1-Oct- 2018 -----	2915	----- FY19 (2.0%)
	1-Jan- 2019 -----	2930	
	1-Apr- 2019 -----	2944	
	1-Jul- 2019 -----	2959	
FY 2020	1-Oct- 2019 -----	2973	----- FY20 (2.0%)
	1-Jan- 2020 -----	2988	
	1-Apr- 2020 -----	3003	
	1-Jul- 2020 -----	3018	
FY 2021	1-Oct- 2020 -----	3032	----- FY21 (2.0%)
	1-Jan- 2021 -----	3048	
	1-Apr- 2021 -----	3063	
	1-Jul- 2021 -----	3078	
FY 2022	1-Oct- 2021 -----	3093	----- FY22 (2.0%)
	1-Jan- 2022 -----	3109	
	1-Apr- 2022 -----	3124	
	1-Jul- 2022 -----	3140	
FY 2023	1-Oct- 2022 -----	3155	----- FY23 (2.0%)
	1-Jan- 2023 -----	3171	
	1-Apr- 2023 -----	3187	
	1-Jul- 2023 -----	3203	
FY 2024	1-Oct- 2023 -----	3218	----- FY24 (2.0%)

Notes

1. Use **2.0%** per fiscal year for projection beyond **FY 2023**
2. Tri - Service MCP Index (1,000) = 1 October 1979 ENR Historical Building Cost Index (1,900)
3. The MCP indexes after 1 Oct 2016 were derived using the Price Escalation Indices (Annual Rates in Percentages) for Budget Authority published in the 22 Dec 2017 Inflation Guidance for FY 2019 President's Budget Submission.
4. This revised index table supersedes the MCP index table published as Appendix-C to PAX Newsletter 3.2.2, dated **6 Apr 2017**.

TABLE I - SIZE ADJUSTMENT FACTORS

PART I - BUILDING (OTHER THAN BARRACKS & FAMILY HOUSING)

<u>SIZE RATIO</u>	<u>ADJUST FACTOR</u>	<u>SIZE RATIO</u>	<u>ADJUST FACTOR</u>	<u>SIZE RATIO</u>	<u>ADJUST FACTOR</u>	<u>SIZE RATIO</u>	<u>ADJUST FACTOR</u>
< 0.05	1.2750	0.9000	1.0110	1.8000	0.9490	2.7000	0.9250
0.0500	1.2750	0.9500	1.0050	1.8500	0.9470	2.7500	0.9240
0.1000	1.2690	1.0000	1.0000	1.9000	0.9450	2.8000	0.9240
0.1500	1.2320	1.0500	0.9950	1.9500	0.9430	2.8500	0.9230
0.2000	1.2020	1.1000	0.9900	2.0000	0.9420	2.9000	0.9220
0.2500	1.1750	1.1500	0.9860	2.0500	0.9400	2.9500	0.9210
0.3000	1.1520	1.2000	0.9820	2.1000	0.9390	3.0000	0.9210
0.3500	1.1320	1.2500	0.9780	2.1500	0.9370	3.0500	0.9200
0.4000	1.1140	1.3000	0.9740	2.2000	0.9360	>3.05	0.9200
0.4500	1.0980	1.3500	0.9710	2.2500	0.9350		
0.5000	1.0840	1.4000	0.9680	2.3000	0.9330		
0.5500	1.0720	1.4500	0.9650	2.3500	0.9320		
0.6000	1.0600	1.5000	0.9620	2.4000	0.9310		
0.6500	1.0500	1.5500	0.9600	2.4500	0.9300		
0.7000	1.0410	1.6000	0.9570	2.5000	0.9290		
0.7500	1.0330	1.6500	0.9550	2.5500	0.9280		
0.8000	1.0250	1.7000	0.9530	2.6000	0.9270		
0.8500	1.0180	1.7500	0.9510	2.6500	0.9260		

NOTE: Size ratio is determined by dividing the proposed building size by the average size shown in Part I of Appendix A. To determine the size adjustment factor, use the closest size ratio from above table.

PART II - PROJECT SIZE ADJUSTMENTS FOR BARRACKS/FAMILY HOUSING

MILITARY FAMILY HOUSING PROJECT SIZE ADJUSTMENT FACTORS		BARRACKS/ DORMITORIES PROJECT SIZE ADJUSTMENT FACTORS	
NUMBER OF UNITS in the project	PROJECT SIZE FACTOR	NUMBER OF ROOMS in the project	PROJECT SIZE FACTOR
1-9	1.25	1-99	1.07
10-19	1.15	100-149	1.03
20-49	1.10	150-199	1.00
50-99	1.04	200-299	0.97
100-199	1.00	300+	0.95
200-299	0.93		
300+	0.90		

CHART C, METRIC/ENGLISH SYSTEMS

<u>QUANTITY</u>	<u>FROM</u>			<u>TO OBTAIN</u>	
LENGTH	inch		25.400000	millimeter	
	foot		0.304800	meter	
	yard		0.914400	meter	
	mile (U.S. Status)		1.609344	kilometer	
	millimeter		0.039370	inch	
	meter		3.280840	foot	
	meter		1.093613	yard	
	kilometer		0.621370	mile	
AREA	square inch		645.160300	square millimeter	
	square foot		0.092903	square meter	
	square yard		0.836127	square meter	
	square mile		2.589998	square kilometer	
	acre		4046.873000	square meter	
	acre		0.404687	hectare	
	square millimeter		0.001550	square inch	
	square meter		10.763910	square foot	
	square meter		1.195990	square yard	
	square kilometer		0.386101	square mile	
	square meter		0.000247	acre	
	hectare		2.471044	acre	
	VOLUME	cubic inch		16387.060000	cubic millimeter
	cubic foot		0.028316	cubic meter	
	cubic yard		0.764555	cubic meter	
	gallon (U.S. liquid)		3.785412	liter	
	quart (U.S. liquid)		0.946353	liter	
	cubic millimeter		0.000061	cubic inch	
	cubic meter		35.314662	cubic foot	
	cubic meter		1.307951	cubic yard	
	liter		0.264172	gallon	
	liter		1.056688	quart	
	MASS	ounce (avoirdupois)		28.349520	gram
		pound (avoirdupois)		0.453592	kilogram
short ton			907.185000	kilogram	
gram			0.035273	ounce	
kilogram			2.204622	pound	
kilogram			0.001102	short ton	
ENERGY -					
HEAT &	kilowatthour		3.600000	megajoule	
WORK	btu		1.055056	kilojoule	
	horsepower hour		2.684520	megajoule	
	megajoule		0.277780	kilowatthour	
	kilojoule		0.947817	btu	
	megajoule		0.372506	horsepower hour	
POWER	ton (refrigeration)		3.517000	kw	
	btu/s		1.055056	kw	
	hp (electric)		745.700000	w	
	btu/h		0.293071	w	
	kw		0.284333	ton (refrigeration)	
	kw		0.947817	btu/s	
	w		0.001341	hp (electric)	
	w		3.412141	btu/h	