**SECTION 00 01 10**
**TABLE OF CONTENTS (ID/IQ) – PHASE II**
REV 1.10 – 31 JAN 2010

**REQUEST FOR PROPOSAL**
**Unaccompanied Enlisted Personnel Housing (UEPH)**
**Fort Bragg**

**DIVISION 00 - PROPOSAL REQUIREMENTS, CONTRACT FORMS AND CONDITIONS**

**Sections**

00 22 20 Phase 2 Design-Build Selection Procedures and Basis of Award
00 72 00 Contract Clauses – Table of Contents **
00 73 00 Special Contract Requirements **

**DIVISION 01 - GENERAL REQUIREMENTS**

**Sections ****

01 32 01.00 10 Project Schedule
01 33 00 Submittal Procedures
01 33 16 Design After Award
01 45 01.10 Quality Control System (QCS)
01 45 04.00 10 Contractor Quality Control
01 50 02 Temporary Construction Facilities
01 57 20.00 10 Environmental Protection
01 62 35 Recycled/Recovered Materials
01 78 02.00 10 Closeout Submittals

**TASK ORDER SPECIFIC REQUIREMENTS:**

**DIVISION 00 - PROPOSAL REQUIREMENTS, CONTRACT FORMS AND CONDITIONS**

**Sections**

00 11 00 CLIN SCHEDULE
00 73 10 Supplemental Contract Requirements
00 73 46 Wage Determination Schedule

**DIVISION 01 - General Requirements**

**Sections (Task Order Specific Requirements)**

01 10 00.01 Task Order Statement of Work
01 33 00 Submittal Procedures
01 33 16 Design After Award
01 45 04.00 10 Contractor Quality Control

01 50 02 Temporary Construction Facilities

01 57 23 Temporary Storm Water Pollution Control

**APPENDICES (TASK ORDER SPECIFIC REQUIREMENTS):**

**Initial Task Order Appendices**

Appendix A Geotechnical Information

Appendix B List of Drawings

Appendix C Utility Connections

Appendix D Results of Fire Flow Tests

Appendix E Environmental Information

Appendix F Conceptual Aesthetic Considerations

Appendix G GIS Data

Appendix H Exterior Signage

Appendix I Acceptable Plants List

Appendix J Drawings

Appendix K Utility Cost Information

Appendix L LEED Project Credit Guidance

Appendix M LEED Owner's Project Requirements

Appendix N LEED Requirements for Multiple Contractor Combined Projects

Appendix O LEED Multiple Contractor Responsibilities Table~~Strategy Tables~~

Appendix P USGBC Registration of Army Projects

Appendix Q AREA Computation

Appendix R RMS Submittal Register Input Form

End of Table of Contents

**NOTE: ** Indicates the Sections which are included in the Base ID/IQ Contract. From time to time the Government may update these Sections by Administrative Modifications for application to task order orders issued subsequently. Other Sections, Appendices, etc. will be included in each Specific Task Order, as indicated in TASK ORDER SPECIFIC REQUIREMENTS, above.**

**SECTION 00 72 00**
REV 2.2 - 08 NOV 2008

**TABLE OF CONTENTS FOR CONTRACT CLAUSES**

**The clauses below are included for reference only. They are to be entered into the RFP through the SPS system. No other clauses other than those listed in the tables below should be included in the RFP unless approved by the PEO**

***The following contract provisions are required to be used:***

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| 52.202-1 | DEFINITIONS | Yes | 2.201 > SAT FOR CONSTRUCTION/ A-E/ DEMOLITION-ALL |
| 52.203-5 | COVENANT AGAINST CONTINGENT FEES | Yes | 3.404 > SAT EXCEPT THOSE FOR COMMERCIAL ITEMS |
| 52.203-7 | ANTI-KICKBACK PROCEDURES | Yes | 3.502-2 > SAT EXCEPT THOSE FOR COMMERCIAL ITEMS |
| 52.211-10 | COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK | NO | 11.404(b) |
| 52.216-24 | LIMITATION OF GOVERNMENT LIABILITY | NO | 16.603-4(b)(2) USE WITH LETTER CONTRACTS |
| 52.216-25 | CONTRACT DEFINITIZATION | NO | 16.603-4(b)(3) USE WITH LETTER CONTRACTS |
| 52.223-14 | TOXIC CHEMICAL RELEASE REPORTING | Yes | 23.907(b) > SAT USE IN ALL K THAT INCLUDES 52.222-13 IN SECTION 00600. USE FOR CONSTRUCTION |
| 52.225-13 | RESTRICTIONS ON CERTAIN FOREIGN PURCHASES | Yes | 25.1103(a) > $2500 |
| 52.232-27 | PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS | Yes | 32.908 (b) ALL |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| 52.232-5 | PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS | No | 32.111(a)(5) FP CONSTRUCTION |
| 52.233-3 | PROTEST AFTER AWARD | Yes | 33.106(b) ALL |
| 52.233-4 | APPLICABLE LAW FOR BREACH OF CONTRACT CLAIM | Yes | 33.215(b) ALL |
| 52.236-5 | MATERIAL AND WORKMANSHIP | Yes | 36.505 ALL |
| 52.236-7 | PERMITS AND RESPONSIBILITIES | Yes | 36.507 FP CONSTRUCTION > SAT |
| 52.244-6 | SUBCONTRACTS FOR COMMERCIAL ITEMS | Yes | 44.403 ALL Ks OTHER THAN COM. ITEMS |

***The following contract provisions are to be used if applicable for your project:***

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| 52.203-3 | GRATUITIES | Yes | 3.202 > SAT EXCEPT THOSE FOR PERSONAL SVCS |
| 52.203-6 | RESTRICTION ON SUBCONTRACTOR SALES TO THE GOVERNMENT | Yes | 3.503-2 > SAT EXCEPT THOSE FOR COMMERCIAL ITEMS |
| 52.203-8 | CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY | Yes | 3.104-9(a) > SAT |
| 52.203-10 | PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY | Yes | 3.104-9(b) > SAT |
| 52.203-12 | LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL | Yes | 3.808(b) > $100K |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| | TRANSACTIONS | | |
| 52.204-2 | SECURITY REQUIREMENTS | Yes | 4.404(a) USE WHEN CONTRACT MAY REQUIRE ACCESS TO CLASSIFIED INFORMAITON |
| 52.204-2 ALT II | SECURITY REQUIREMENTS (AUG 1996) ALT II | Yes | 4.404(c ) USE WHERE KTR ID IS REQ'D |
| 52.204-4 | PRINTED OR COPIED DOUBLE-SIDED ON RECYCLED PAPER | Yes | 4.303 > SAT |
| 52.204-7 | CENTRAL CONTRACTOR REGISTRATION | Yes | 4.1104 USE IN ALL EXCEPT WHERE (1) GOVT PURCH CARD IS USED FOR PURCHASING AND PAYMENT, (2) CLASSIFIED, (3)CONTINGENCY |
| 52.204-9 | PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL | Yes | 4.1301 use when when contract performance requires contractors to have routine physical access to a Federally-controlled facility and/or routine access to a Federally-controlled information system. |
| 52.208-8 | REQUIRED SOURCES FOR HELIUM AND HELIUM USAGE DATA | NO | 8.505 IF PEFORMANCE REQUIRES A MAJOR HELIUM REQUIREMENT |
| 52.209-6 | PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT | Yes | 9.409(b) >$25K |
| 52.211-10 ALT I | COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (Apr 1984) ALTERNATE I | Yes | 11.404(b) IF COMPLETION DATE IS EXPRESS AS SPECIFIC CALENDAR DATE |
| 52.211-13 | TIME EXTENSIONS | Yes | 11.503( C) IF USING 52.211-12 AND IF MULTIPLE COMPLETION DATES WITH SEPARATE LIQUIDATED DAMAGES |
| 52.211-15 | DEFENSE PRIORITY AND ALLOCATION REQUIREMENTS | Yes | 11.604(b) PRIORITY RATED CONTRACTS |
| 52.211-18 | VARIATION IN ESTIMATED QUANTITY | Yes | 11.703 c) IF VARIATION IN ESTIMATED QUANTITY OF UNIT PRICED ITEMS IS |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| | | | AUTHORIZED |
| 52.215-2 | AUDIT AND RECORDS -- NEGOTIATION | Yes | 15.209(b)(1) > SAT |
| 52.215-2 ALT III | AUDIT AND RECORDS -- NEGOTIATION (JUNE 1999) ALTERNATE III | Yes | 15.209(b)(4) USE WHEN HEAD OF AGENCY HAS WAIVED EXAMINATION OF RECORDS BY THE COMPTROLLER GENERAL IAW 25.1001 |
| 52.215-8 | Order of Precedence -- Uniform Contract Format | Yes | 15.209(h) in solicitations and contracts using the format at 15.204. |
| 52.215-10 | PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA | Yes | 15.408(b) SOLE SOURCE > $550K |
| 52.215-11 | PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA -- MODIFICATIONS | Yes | 15.408( c) USE IN ALL THAT MODS MAY BE > $550K |
| 52.215-12 | SUBCONTRACTOR COST OR PRICING DATA | Yes | 15.408(d) SOLE SOURCE > $550K |
| 52.215-13 | SUBCONTRACTOR COST OR PRICING DATA -- MODIFICATIONS | Yes | 15.408(e) USE WHEN 52.215-11 IS USED |
| 52.215-15 | PENSION ADJUSTMENTS AND ASSET REVERSIONS | Yes | 15.408(g) USE WHERE COST OR PRICING DATA REQ'D OR COST DETERMINATIONS SUBJECT TO PART 31. |
| 52.215-17 | WAIVER OF FACILITIES CAPITAL COST OF MONEY | Yes | 15.408(i) USE WHERE KTR DOES NOT PROPOSE FACILITIES CAPITAL COST OF MONEY IN ITS OFFER |
| 52.215-18 | REVERSION OR ADJUSTMENT OF PLANS FOR POSTRETIREMENT BENEFITS (PRB) OTHER THAN PENSIONS | Yes | 15.408(j) USE WHERE COST OR PRICING DATA REQ'D OR COST DETERMINATIONS SUBJECT TO PART 31. |
| 52.215-19 | NOTIFICATION OF OWNERSHIP CHANGES | NO | 15.408(k) USE WHERE COST OR PRICING DATA REQ'D OR COST DETERMINATIONS SUBJECT TO PART 31. |
| 52.216-5 | PRICE REDETERMINATION -- PROSPECTIVE | Yes | 16.205-4 USE IN ACQUISITIONS OF QUANTITY PRODUCTION WHERE FFP CAN BE NEGOTIATED FOR AN INITIAL PERIOD BUT NOT SUBSEQUENT PERIODS. |
| 52.216-16 | INCENTIVE PRICE REVISION -- FIRM | Yes | 16.406(a)3 USE WITH FP INCENTIVE (FIXED TARGETS) CONTRACTS |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| | TARGETS | | |
| 52.216-17 | INCENTIVE PRICE REVISION -- SUCCESSIVE TARGETS | Yes | 16.406(b)3 USE WITH FP INCENTIVE (SUCCESSIVE TARGETS) CONTRACTS |
| 52.216-18 | ORDERING | Yes | 16.506(a) IDC, DEFINATE QUANTITY, OR REQUIREMENTS |
| 52.216-19 | ORDER LIMITATIONS | Yes | 16.506(b) IDC, DEFINATE QUANITITY, OR REQUIREMENTS |
| 52.216-20 | DEFINITE QUANITY | Yes | 16.506(c ) IF DEFINATE QUANITY |
| 52.216-21 | REQUIREMENTS | Yes | 16.506(d)(1) IF A REQUIRMENTS CONTRACT |
| 52.216-22 | INDEFINITE QUANTITY | Yes | 16.506(e) IDC ONLY |
| 52.216-23 | EXECUTION AND COMMENCEMENT OF WORK | NO | 16.603-4(b)(1) USE WITH LETTER CONTRACTS EXCEPT WHERE AWARDED ON SF26 |
| 52.216-25 ALT I | CONTRACT DEFINITIZATION (OCT 1997) ALTERNATE I | NO | 16.603-4(b)(3) USE WITH LETTER CONTRACTS WHERE AWARDING ON THE BASIS OF PRICE COMPETITION |
| 52.217-2 | CANCELLATION UNDER MULTIYEAR CONTRACTS | Yes | 17.109(a) IF A MULTIYEAR CONTRACT |
| 52.217-9 | OPTION TO EXTEND THE TERM OF THE CONTRACT | Yes | 17.208(g) USE IN IDC'S. REQ'D TO GIVE 30 DAY NOTICE FOR OPTION PERIODS. |
| 52.219-3 | NOTICE OF TOTAL HUBZONE SET-ASIDE | Yes | 19.1308(a) USE IN TOTAL HUBZONE SET-ASIDES |
| 52.219-4 | NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS | Yes | 19.1308(b) FULL & OPEN NOT < SAT |
| 52.219-8 | UTILIZATION OF SMALL BUSINESS CONCERNS | Yes | 19.708(a) > SAT UNLESS FOR PERSONAL SVCS OR OUTSIDE USA |
| 52.219-9 | SMALL BUSINESS SUBCONTRACTING PLAN | Yes | 19.708(b) > $1 MILLION & WHERE 52.219-8 EXCEPT WITH SET-ASIDES |
| 52.219-9 ALT II | SMALL BUSINESS SUBCONTRACTING PLAN (JUL 2005) ALT II | Yes | 19.708(b)(2) USE IF 52.219-9 USED |
| 52.219-14 | LIMITATIONS ON | Yes | 19.508(e) > SAT AND SET-ASIDE OR 19.811-3(e). INCLUDE IN UNRESTRICTED |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| | SUBCONTRACTING | | SOLICITATIONS ALSO. APPLICABLE ON AN RESTRICTED AWARD WHEN A PRICE PREFERENCE IS CLAIMED (CURRENTLY SUSPENDED FOR RFP'S ISSUED THROUGH 9 MAR 2007) |
| 52.219-16 | LIQUIDATED DAMAGES -- SUBCONTRACTING PLAN | Yes | 19.708(b)(2) USE IF 52.219-9 USED |
| 52.219-17 | SECTION 8(a) AWARD | No | 19.811-3(c) - 8(a) COMPETITIVE OR SOLE SOURCE |
| 52.219-18 | NOTIFICATION OF COMPETITION LIMITED TO ELIGIBLE 8(a) CONCERNS - (**USE BOTH FAR & DFARS CLAUSES IN AN 8(A) SET ASIDE.)** | No | 19.811-3(d) - 8(a) COMPETITIVE |
| 52.219-23 | NOTICE OF PRICE EVALUATION ADJUSTMENT FOR SMALL DISADVANTAGED BUSINESS CONCERNS | Yes | 19.1104 - CHECK NAICS CODE, DO NOT USE WITH SET-ASIDES |
| 52.219-23 ALT II | NOTICE OF PRICE EVALUATION ADJUSTMENT FOR SMALL DISADVANTAGED BUSINESS CONCERNS (SEP 2005) ALTERNATE II | Yes | 19.1104 - USE WHEN A REGIONAL PRICE EVALUATION ADJUSTMENT IS AUTHORIZED |
| 52.219-25 | SMALL DISADVANTAGED BUSINESS PARTICIPATION PROGRAM-DISADVANTAGED STATUS AND REPORTING | Yes | 19.1204(b) IF CONSIDERING PARTICIPATION OF SDB |
| 52.219-27 | NOTICE OF TOTAL SERVICE DISABLED VETERAN OWNED SMALL BUSINESS SET ASIDE | Yes | 19.1407-USE IF DOING A SET-ASIDE OR SOLE-SOURCE TO A SDVOSB |
| 52.222-10 | COMPLIANCE WITH COPELAND ACT REQUIREMENT | Yes | 22.407 (a) > $2000 |
| 52.222-11 | SUBCONTRACTS (LABOR STANDARDS) | Yes | 22.407 (a) > $2000 |
| 52.222-12 | CONTRACT TERMINATION -- DEBARMENT | Yes | 22.407 (a) > $2000 (CONSTRUCTION) |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| 52.222-13 | COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REGULATIONS | Yes | 22.407 (a) > $2000 (CONSTRUCTION) |
| 52.222-14 | DISPUTES CONCERNING LABOR STANDARDS | Yes | 22.407 (a) > $2000 (CONSTRUCTION) |
| 52.222-15 | CERTIFICATION OF ELIGIBILITY | Yes | 22.407 (a) > $2000 (CONSTRUCTION) |
| 52.222-21 | PROHIBITION OF SEGREGATED FACILITIES | Yes | 22.810(a)(1) USE WITH 52.222-26 |
| 52.222-26 | EQUAL OPPORTUNITY | Yes | 22.810(e) USE IN ALL UNLESS K IS EXEMPT FROM EO11240 |
| 52.222-27 | AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION | Yes | 22.810(f) USE W/ 52.222-26 |
| 52.222-3 | CONVICT LABOR | Yes | 22.202 > SAT |
| 52.222-30 | DAVIS BACON ACT--PRICE ADJUSTMENT (NONE OR SEPARATELY SPECIFIED METHOD) | Yes | 22.407(e) USE WITH OPTIONS TO EXTEND TERM OF K, & PRICE ADJUSTMENT METHOD BEING USED IS AT 22.404-12(c ) (1) or (2) |
| 52.222-31 | DAVIS BACON ACT--PRICE ADJUSTMENT (PERCENTAGE METHOD) | Yes | 22.407(f) USE WITH OPTIONS TO EXTEND TERM OF K, & PRICE ADJUSTMENT METHOD BEING USED IS AT 22.404-12(c )(3) |
| 52.222-32 | DAVIS BACON ACT--PRICE ADJUSTMENT (NONE OR SEPARATELY SPECIFIED METHOD) | Yes | 22.407(g) USE WITH OPTIONS TO EXTEND TERM OF K, & PRICE ADJUSTMENT METHOD BEING USED IS AT 22.404-12(c ) (4) |
| 52.222-35 | EQUAL OPPORTUNITY FOR SPECIAL DISABLED VETERANS, VETRANS OF THE VIETMNAM ERA, AND OTHER ELGIBLE VETRANS | Yes | 22.1310(a)(1) > $25K EXCEPT OUTSIDE USA |
| 52.222-36 | AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES | Yes | 22.1408(a) > $10 K EXCEPT WHEN OUTSIDE USA |
| 52.222-37 | EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS, VETRANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE | Yes | 22.1308(b) USE W/52.222-35 > $10K EXCEPT OUTSIDE USA |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| | VETRANS | | |
| 52.222-39 | NOTIFICATION OF EMPLOYEE RIGHTS CONCERNING PAYMENT OF UNIION DUES OR FEES | No | 22.1605 ALL > SAT EXCEPT THOSE COVERED BY AN EXEMPTION GRANTED BY THE SECRETARY OF LABOR |
| 52.222-4 | CONTRACT WORK HOURS AND SAFETY STANDARDS ACT -- OVERTIME COMPENSATION | Yes | 22.305 IF LABORERS OR MECHANICS |
| 52.222-6 | DAVIS-BACON ACT | Yes | 22.407 (a) > $2000 |
| 52.222-7 | WITHHOLDING OF FUNDS | Yes | 22.407 (a) > $2000 |
| 52.222-8 | PAYROLLS AND BASIC RECORDS | Yes | 22.407 (a) > $2000 |
| 52.222-9 | APPRENTICES AND TRAINEES | Yes | 22.407 (a) > $2000 |
| 52.223-3 | HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA | No | 23.303 IF REQUIRES DELIVERY OF HAZARDOUS MATERIAL |
| 52.223-5 | POLLUTION PREVENTION AND RIGHT-TO-KNOW INFORMATION | Yes | 23.1005 USE IF PERFORMED ON A FEDERAL FACILITY |
| 52.223-6 | DRUG FREE WORKPLACE | Yes | 23.505 > SAT UNLESS AWARDED TO INDIVIDUAL |
| 52.225-11 | BUY AMERICAN ACT -- CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS | No | 25.1102 (C)(1) CONSTRUCTION > $6.8 M |
| 52.225-11 ALT I | BUY AMERICAN ACT -- CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (JAN 2005), ALT I | No | 25.1102 (C)(3) K BETWEEN $6.806,000 & $7,068,419 |
| 52.225-9 | BUY AMERICAN ACT-- CONSTRUCTION MATERIALS | No | 25.1102(a) CONSTRUCTION LESS THAN $6.8 MILLION |
| 52.226-1 | UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC | Yes | 26.104 WHERE SUBCT POSSIBILITIES EXIST AND FUNDS ARE AVAILABLE |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| | ENTERPRISES | | |
| 52.227-1 | AUTHORIZATION AND CONSENT | Yes | 27.201(a) ALL |
| 52.227-2 | NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT | Yes | 27.202-2 >SAT |
| 52.227-4 | PATENT INDEMNITY--CONSTRUCTION CONTRACTS | Yes | 27.203-5 USE, EXCEPT IF USING 52.227-1 ALT I |
| 52.228-2 | ADDITIONAL BOND SECURITY | Yes | 28.106-4 USE IF PERFORMANCE /PAYMENT BONDS REQUIRED ALL |
| 52.228-5 | INSURANCE--WORK ON A GOVERNMENT INSTALLATION | Yes | 28.310 USE IF WORK ON GOVERNMENT INSTALLATION |
| 52.228-11 | PLEDGES OF ASSETS | No | 28.203-6 USE IF PERFORMANCE OR PAYMENT BONDS REQ'D |
| 52.228-12 | PROSPECTIVE SUBCONTRACTOR REQUESTS FOR BONDS | Yes | 28.106-4(b) USE IF PERFORMANCE AND PAYMENT BONDS REQ'D |
| 52.228-13 | ALTERNATIVE PAYMENT PROTECTIONS | No | 28.102-3(b) IF BETWEEN $25K-$100K |
| 52.228-14 | IRREVOCABLE LETTER OF CREDIT | No | 28.404-4 USE IF PERFORMANCE OR PAYMENT BONDS REQ'D |
| 52.228-15 | PERFORMANCE AND PAYMENT BONDS - CONSTRUCTION | Yes | 28.102-3(a)(6) USE IF >$100K AND PERFORMANCE AND PAYMENT BONDS REQ'D |
| 52.229-2 | NORTH CAROLINA STATE AND LOCAL SALES AND USE TAX | No | 29.104-2 IF PERFORMED IN NC |
| 52.229-3 | FEDERAL, STATE, AND LOCAL TAXES | Yes | 29.401-3 IF FP AND >SIMPLIFIED ACQ THRESHOLD |
| 52.229-4 | FEDERAL, STATE, AND LOCAL TAXES (ADJUSTMENTS) | Yes | 29.401-3(b) IF SOLE-SOURCE & INCLUDES INAPPROPRIATE CONTINGENCY |
| 52.230-2 | COST ACCOUNTING STANDARDS | Yes | 30.201-4(a) USE UNLESS EXEMPT FROM CAS OR USING MODIFIED CAS |
| 52.230-3 | DISCLOSURE AND | Yes | 30.201-4(b)(1) IF BETWEEN $500K-$50M & |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| | CONSISTENCY OF COST ACCOUNTING PRACTICES | | OFFEROR ELIGIBLE FOR MODIFIED CAS |
| 52.230-6 | ADMINISTRATION OF COST ACCOUNTING STANDARDS | Yes | 30.201-4(d)(1) IF ANY CLAUSE AT 30.201-4 (a)(b) or (e) APPLIES |
| 52.232-12 | ADVANCE PAYMENTS | No | 32.412(a) IF ALLOWING ADVANCE PAYMENTS |
| 52.232-16 | PROGRESS PAYMENTS | No | 32.502-4(a) IF PROVIDING PROGRESS PAYMENTS BASED ON COST |
| 52.232-16 ALT I | PROGRESS PAYMENTS ALT 1 | No | 32.502-4(b) IF KTR IS SMALL BUSINESS AND USING PROGRESS PAYMENTS |
| 52.232-16 ALT III | PROGRESS PAYMENTS ALT III | No | 32.502-4(d) IF USING PROGRESS PAYMENTS, IDIQ, BOA, & KTR IS NOT SMALL BUSINESS |
| 52.232-17 | INTEREST | Yes | 32.617(a) & (b) ALL > $100K |
| 52.232-18 | AVAILABILITY OF FUNDS | Yes | 32.705-1(a); USE IF THE K WILL BE CHARGEABLE TO NEW FY FUNDS & CT ACTION IS TO BE INITIATED BEFORE FUNDS ARE AVAILABLE (USE IF SAF) |
| 52.232-23 | ASSIGNMENT OF CLAIMS | Yes | 32.806(a)(1) > MICRO-PURCHASE THRESHOLD UNLESS THE K PROHIBITS THE ASSIGNMENT OF CLAIMS |
| 52.232-23 ALT I | ASSIGNMENT OF CLAIMS (JAN 1986), ALT I | Yes | 32.806(a)(1) & 232.806(a)(2) - USE UNLESS ASSIGNMENT OF CLAIMS IS PROHIBITED |
| 52.232-32 | PERFORMANCE BASED PAYMENTS | Yes | 32.1005 IF USING PERFORMANCE BASED PAYMENTS |
| 52.232-33 | PAYMENT BY ELECTRONIC FUNDS TRANSFER -- CENTRAL CONTRACTOR REGISTRATION | Yes | 32.1110(a)(1) IF CCR USED AS DATABASE |
| 52.233-1 | DISPUTES | Yes | 32.215 USE IN ALL UNLESS 33.203(b) APPLIES (FOREIGN ACQS) |
| 52.233-1 ALT I | DISPUTES ALT I | Yes | 33.215 IF CONTINUED PERFORMANCE IS NECESSARY |
| 52.236-1 | PERFORMANCE OF WORK BY CONTRACTOR | No | 36.501(b) IF FP CONSTRUCTION, > $1M. STATE THAT THE CONTRACTOR SHALL SELF-PERFORM AT LEAST 12% OF THE WORK. |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| 52.236-2 | DIFFERING SITE CONDITIONS | Yes | 36.502 FP CONSTRUCTION > SAT |
| 52.236-3 | SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK | Yes | 36.503 FP CONSTRUCTION > SAT |
| 52.236-4 | PHYSICAL DATA | No | 36.504 IF FP CONSTRUCTION & PHYSICAL DATA WILL BE PROVIDED |
| 52.236-6 | SUPERINTENDENCE BY THE CONTRACTOR | Yes | 36.506 FP CONSTRUCTION > SAT |
| 52.236-8 | OTHER CONTRACTS | Yes | 36.508 FP CONSTRUCTION OR DEMOLITION > SAT |
| 52.236-9 | PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS | Yes | 36.509 FP CONSTRUCTION > SAT |
| 52.236-10 | OPERATIONS AND STORAGE AREAS | Yes | 36.510 FP CONSTRUCTION > SAT |
| 52.236-11 | USE AND POSSESSION PRIOR TO COMPLETION | Yes | 36.511 FP CONSTRUCTION > SAT |
| 52.236-12 | CLEANING UP | Yes | 36.512 FP CONSTRUCTION > SAT |
| 52.236-13 | ACCIDENT PREVENTION | Yes | 36.513 FP CONSTRUCTION > SAT |
| 52.236-13 ALT I | ACCIDENT PREVENTION (NOV 1991), ALT I | Yes | 36.513 FP CONSTRUCTION, IF LONG DURATION OR HAZARDOUS > SAT |
| 52.236-14 | AVAILABILITY AND USE OF UTILITY SERVICES | Yes | 36.514 FP CONSTRUCTION & FURNISHING UTILITIES IS IN GOVT'S BEST INTEREST |
| 52.236-17 | LAYOUT OF WORK | Yes | 36.517 FP CONSTRUCTION > SAT, NEED ACCURATE WORK LAYOUT |
| 52.236-21 | SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION | Yes | 36.521 FP CONSTRUCTION > SAT |
| 52.236-21ALT I | SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION ALT I | Yes | 36.521 FP CONSTRUCTION > SAT, IF REPRODUCIBLE SHOP DRAWINGS ARE NEEDED |
| 52.236-21ALT II | SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION ALT II | Yes | 36.521 FP CONSTRUCTION > SAT, IF REPRODUCIBLE SHOP DRAWINGS ARE NOT NEEDED |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| 52.236-25 | REQUIREMENTS FOR REGISTRATION OF DESIGNERS | Yes | 36.609-4 USE IFOR ALL DESIGN-BUILD CONTRACTS |
| 52.236-26 | PRECONSTRUCTION CONFERENCE | Yes | 36.522 USE IF NEED A PRECONSTRUCTION CONFERENCE |
| 52.242-13 | BANKRUPTCY | Yes | 42.903 > SAT |
| 52.242-14 | SUSPENSION OF WORK | Yes | 42.1305(a) FP CONSTRUCTION |
| 52.243-4 | CHANGES | Yes | 43.205(d) > SAT |
| 52.244-5 | COMPETITION IN SUBCONTRACTING | Yes | 44.204(c ) USE IF CAN NOT AWARD ON BASIS OF ADEQUATE PRICE COMPETITION |
| 52.245-1 | PROPERTY RECORDS | Yes | 45.106(a) IF HAVE GFP |
| 52.245-2 | GOVERNMENT PROPERTY (FIXED PRICE CONTRACTS) | Yes | 45.106(b)(1) IF GFP IS >$100K AND INSTALLED BY KTR |
| 52.246-12 | INSPECTION OF CONSTRUCTION | Yes | 46.312 IF >SAT |
| 52.246-21 | WARRANTY OF CONSTRUCTION | Yes | 46.710 (e)(1) ALL FP CONSTRUCTION |
| 52.248-3 | VALUE ENGINEERING-CONSTRUCTION | Yes | 48.202 IF > SAT |
| 52.249-2 ALT I | TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED PRICE) (MAY 2004) ALT I | Yes | 49.502(b)(1)(ii) IF > $100K |
| 52.252-2 | CLAUSES INCORPORATED BY REFERENCE | No | 52.107(b) - ALL |
| 52.253-1 | COMPUTER GENERATED FORMS | Yes | 53.111 IF DATA IS TO BE SUBMITTED ON FEDERAL FORMS |
| 252-201-7000 | CONTRACTING OFFICER'S REPRESENTATIVE | No | 201.602-70 WHEN COR IS NEEDED |
| 252-203-7001 | PROHIBITION ON PERSONS CONVICTED OF FRAUD OR OTHER DEFENSE-CONTRACT-RELATED FELONIES | No | 203.570-3 > SAT |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| 252-203-7002 | DISPLAY OF DOD HOTLINE POSTER | No | 203.7002 > $5 MILLION ONLY |
| 252-204-7000 | DISCLOSURE OF INFORMATION | No | DFARS 204.404-70 WHEN THE CONTRACTOR WILL HAVE ACCESS TO OR GENERATE UNCLASSIFIED INFO THAT MAY BE SENSITIVE & INAPPROPRIATE FOR RELEASE TO THE PUBLIC |
| 252-204-7003 | CONTROL OF GOVERNMENT PERSONNEL WORK PRODUCT | No | DFARS 204.404-70(b) ALL |
| 252-204-7004 ALT A | ALTERNATE A **(REQUIRED CENTRAL CONTRACTOR REGISTRATION REVISED BY DFARS CHANGE NOTICE 20031114)** | No | DFARS 204.404-70(b) ALL |
| 252.205-7000 | PROVISION OF INFORMATION TO COOPERATIVE AGREEMENT HOLDERS | No | DFARS 205.470-2 > $1,000,000 |
| 252.209-7004 | SUBCONTRACTING WITH FIRMS THAT ARE OWNED OR CONTROLLED BY THE GOVERNMENT OF A TERRORIST COUNTRY | No | DFARS 209.409 > SAT |
| 252.215-7000 | PRICING ADJUSTMENTS | No | DFARS 215.408-8(1) USE WITH 52.215-11, 12, 13 |
| 252.219-7003 | SMALL, SMALL DISADVANTAGED AND WOMEN OWNED SMALL BUSINESS SUBCONTRACTING PLAN | No | DFARS 219-708 IF UNDER TEST PROGRAM USED IF 52.219-9 IS USED NA/SB |
| 252.219-7009 | SECTION 8(a) DIRECT AWARD | No | DFARS 219.811-3(1) IF 8(a) AWARD USE IAW MOU IN DFARS 219.800 |
| 252.219-7010 ALT A | NOTIFICATION OF COMPETITION LIMITED TO ELIGIBLE 8(a) CONCERNS **(USE BOTH FAR AND DFARS CLAUSES MUST BE USED IN AN 8(A) SET-ASIDE.)** | No | AS PRESCRIBED USE IN 8(a) SET-ASIDES WITH CLAUSE 52.219-18 AT DFARS 52.219-7010 ALT A |
| 252.223-7001 | HAZARD WARNING LABELS | No | DFARS 223.303 WHICH REQUIRE SUBMISSION OF HAZARDOUS MATERIAL |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| | | | DATA SHEETS |
| 252.223-7004 | DRUG-FREE WORK FORCE | No | DFARS 223-570-4 IF CLASSIFIED INFORMATION USED |
| 252.223-7006 | PROHIBITION ON STORAGE AND DISPOSAL OF TOXIC AND HAZARDOUS MATERIALS | No | DFARS 223-7103 PERFORMANCE ON DOD INSTALLATION |
| 252.225-7012 | PREFERENCE FOR CERTAIN DOMESTIC COMMODITIES | No | DFARS 225.7012 ALL |
| 252.226-7001 | UTILIZATION OF INDIAN ORGANIZATIONS, INDIAN-OWNED ECONOMIC ENTERPRISES, AND NATIVE HAWAIIAN SMALL BUSINESS CONCERNS | No | DFARS 226.103 IF THERE ARE SUBCONTRACTING OPPORTUNITIES FOR INDIAN OWNED ENTERPRISES PIL 2002-11 DTD 5/15/02 |
| 252.227-7022 | GOVERNMENT RIGHTS (UNLIMITED) | No | DFARS 227.7107-1(a) CONSTRUCTION WITH A/E<br>USE FOR DESIGN-BUILD |
| 252.227-7023 | DRAWINGS AND OTHER DATA TO BECOME PROPERTY OF THE GOVERNMENT | No | DFARS 227.7107-1(b) CONSTRUCTION WITH A/E - USE FOR DESIGN-BUILD WHEN GOVERNMENT TO OWN EXCLUSIVE RIGHTS TO A UNIQUE DESIGN, IN LIEU OF 252.227-7022 |
| 252.227-7033 | RIGHTS IN SHOP DRAWINGS | No | DFARS 227.7107-1(d) IF SHOP DRAWINGS PART OF DELIVERABLE |
| 252.231-7000 | SUPPLEMENTAL COST PRINCIPLES | No | DFARS 231.100-70 USE IN ALL SOLICITATION & CONTRACTS SUBJECT TO FAR SUBPARTS 31.1, 31.2, 31.6, & 31.7 |
| 252.232-7010 | LEVIES ON CONTRACT PAYMENT | No | DFARS 232.7102 All Solicitations & Contracts |
| 252.236-7000 | MODIFICATION PROPOSALS--PRICE BREAKDOWN | No | DFARS 236.570(a) FFP CONSTRUCTION |
| 252.236-7005 | AIRFIELD SAFETY PRECAUTIONS | No | DFARS 236.570(b)(3) WHEN CONST WILL BE PERFORMED ON OR NEAR AIRFIELDS |
| 252.236-7007 | ADDITIVE OR DEDUCTIVE ITEMS | No | DFARS 252.236-7007(b)(5) if the procedures in 236.213-70 |
| 252.236-7008 | CONTRACT PRICES--BIDDING SCHEDULES | No | DFARS 252.570(b)(6) if the procedures in 236.213-70 are being used. |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| 252.243-7001 | PRICING OF CONTRACT MODIFICATIONS | No | DFARS 243.205-71 FP |
| 252.243-7002 | REQUESTS FOR EQUITABLE ADJUSTMENT | No | DFARS 243.205-72 > SAT |
| 252.244-7000 | SUBCONTRACTS FOR COMMERCIAL ITEMS AND COMMERCIAL COMPONENTS (DOD CONTRACTS) | No | DFARS 244.403 SUPPLIES OR SVCS OTHER THAN COMMERCIAL AND 252.225-7014 PREFERENCE FOR DOMESTIC SPECIALTY METALS, ALT I |
| 252.245-7001 | REPORTS OF GOVERNMENT PROPERTY | No | DFARS 245.505-14 USE IF GFP IS BEING FURNISHED |
| 252.247-7023 | TRANSPORTATION OF SUPPLIES BY SEA | No | DFARS 247.573 (b)(1) > SAT |
| 252.247-7024 | NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA | No | DFARS 247.573 (c) ALL |

***The following contract provisions are optional:***

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| 52.211-12 | LIQUIDATED DAMAGES -- CONSTRUCTION | NO | 11.503 (b) WHEN LIQUIDATED DAMAGES ARE APPROPRIATE |
| 52.215-21 | REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA -- MODIFICATIONS | Yes | 15.408(m) USE IN MODS WHERE COST OR PRICING DATA OR INFO OTHER THAN COPD WILL BE REQ'D |
| 52.215-21 ALT I | REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA -- MODIFICATIONS (OCT 1997) ALTERNATE I | Yes | 15.408(m) USE WITH 15.215-21 WHERE FORMAT OTHER THAN TABLE 15-2 IS REQUIRED |
| 52.215-21 ALT II | REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA -- MODIFICATIONS (OCT 1997) ALTERNATE II | Yes | 15.408(m) USE WITH 15.215-21 WHERE PROPOSALS COPIES ARE TO BE SENT TO THE ACO AND CONTRACT AUDITOR |

| PROVISION | TITLE | Inc by Reference | NOTES |
|---|---|---|---|
| 52.215-21 ALT III | REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA -- MODIFICATIONS (OCT 1997) ALTERNATE III | Yes | 15.408(m) USE WITH 15.215-21 WHERE ELECTRONIC SUBMISSION IS REQUIRED |
| 52.215-21 ALT IV | REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA -- MODIFICATIONS (OCT 1997) ALTERNATE IV | Yes | 15.408(m) USE WHERE INFO OTHER THAN COST OR PRICING DATA IS REQ'D |
| 52.219-10 | INCENTIVE SUBCONTRACTING PROGRAM | Yes | 19.708(c(1) USE WHERE SUBCONTRACTING PLAN IS REQUIRED & MONITARTY INCENTIVE |
| 52.219-24 | SMALL DISADVANTAGED BUSINESS PARTICIPATION PROGRAM - TARGETS | Yes | 19.1204(a) IF CONSIDERING PARTICIPATION OF SDB |
| 52.236-15 | SCHEDULES FOR CONSTRUCTION CONTRACTS | Yes | 36.515 FP CONSTRUCTION > SAT > 60 DAYS |

End of Section 00 72 00

**SECTION 00 73 00 (ID/IQ)**
REV 1.4 - 31 JUL 2008

**SPECIAL CONTRACT REQUIREMENTS**

**1.0 GENERAL**

1.1. REFERENCES – NOT USED

1.2. DESIGN/BUILD CONTRACT – ORDER OF PRECEDENCE (AUG 97)

1.3. PROPOSED BETTERMENTS (AUG 97)

1.4. SELF-PERFORMANCE OF WORK BY THE PRIME CONTRACTOR (MAR 06/UPDATED FEB 08)

1.5. PARTNERING (AUG 97)

1.6. KEY PERSONNEL, SUBCONTRACTORS AND OUTSIDE ASSOCIATES OR CONSULTANTS (MAY 06)

1.7. RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN (MAY 02)

1.8. WARRANTY OF DESIGN (FIRM-FIXED PRICE DESIGN-BUILD CONTRACT) (MAY 02)

1.9. CONSTRUCTOR'S ROLE DURING DESIGN (JUN 98)

1.10. VALUE ENGINEERING AFTER AWARD (JUN 99)

1.11. DEVIATING FROM THE ACCEPTED DESIGN (JUN 02)

1.12. GOVERNMENT-FURNISHED RFP DRAWINGS, SURVEYS AND SPECIFICATIONS (JUL 02)

1.13. GOVERNMENT-FURNISHED SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (JUL 03)

1.14. GOVERNMENT RE-USE OF DESIGN (SEP 05)

1.15. ADDITIONAL MONTHLY INCENTIVE PROGRESS PAYMENT (JULY 05)

1.16. US ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL (MAR 06)

1.17. SUPPLEMENTAL PRICE BREAKDOWN INFORMATION

1.18. SITE SAFETY AND HEALTH OFFICER REQUIREMENTS AND QUALIFICATIONS (APR 08)

1.19. COORDINATION WITH OTHER CONTRACTORS

1.20. CONTRACTOR PERFORMANCE EVALUATION

1.21. NOTICE TO PROCEED

1.22. BONDING REQUIREMENTS

1.23. SCHEDULES, PLANS, AND SUBMITTALS REQUIRED BY THE TECHNICAL SPECIFICATIONS

1.24. INDEFINITE-DELIVERY CONTRACTS

1.25. TASK ORDER CONTRACT AND DELIVERY ORDER CONTRACT OMBUDSMAN

**2.0 PRODUCTS NOT USED**

## 3.0 EXECUTION NOT USED

## 1.0 GENERAL

1.1. REFERENCES - NOT USED

1.2. DESIGN/BUILD CONTRACT - ORDER OF PRECEDENCE (AUG 97)

(a) The contract includes the standard contract clauses and schedules current at the time of contract award. It entails (1) the solicitation in its entirety, including all drawings, cuts, and illustrations, and any amendments, and (2) the successful offeror's accepted proposal. The contract constitutes and defines the entire agreement between the Contractor and the Government. No documentation shall be omitted which in any way bears upon the terms of that agreement.

(b) In the event of conflict or inconsistency between any of the provisions of this contract, precedence shall be given in the following order:

(1) Betterments: Any portions of the accepted proposal which both conform to and exceed the provisions of the solicitation.

(2) The provisions of the solicitations. (See also contract Clause: 52.236- 21, ***SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION***.)

(3) All other provisions of the accepted proposal.

(4) Any design products including, but not limited to, plans, specifications, engineering studies and analyses, shop drawings, equipment installation drawings, etc. These are “deliverables” under the contract and are not part of the contract itself. Design products must conform to all provisions of the contract, in the order of precedence herein.

1.3. PROPOSED BETTERMENTS (AUG 97)

(a) The minimum requirements of the contract are identified in the Request for Proposal. All betterments offered in the proposal become a requirement of the awarded contract.

(b) “Betterment” is defined as any component or system which exceeds the minimum requirements stated in the Request for Proposal. This includes all betterments identified in the proposal and/or all Government identified betterments.

1.4. SELF-PERFORMANCE OF WORK BY THE PRIME CONTRACTOR (MAR 06/UPDATED ~~FEB 08~~JUL 09)

(a) The following describes the applicable clause or requirement for self-performance of work by the Contractor, depending upon the type of solicitation (e.g., unrestricted or full or partial set-aside) and/or whether or not a price evaluation preference was provided for in the source selection evaluation.

(b) Contract clause 52.236-1, ***PERFORMANCE OF WORK BY THE CONTRACTOR***, is applicable to unrestricted procurement contract awards to any business except as explained in paragraphs c. and e., below.

(c) In lieu of the above clause, contract clause 52.219-4, ***NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS*** is applicable for award to a HUBZone small business concern on an unrestricted solicitation when the awardee is a HUBZone small business concern or joint venture and claimed a price evaluation preference in accordance with the clause. For purposes of this clause, “cost of the contract” includes all direct and indirect costs, excluding profit or fees. “Cost of contract performance incurred for personnel” means direct labor costs and any overhead which has only direct labor as its base, plus the concern’s general and administrative overhead rate multiplied by the labor cost.

(d) Contract clause 52.219-3 ***NOTICE OF TOTAL HUBZONE SET-ASIDE*** is applicable to awards made under a partial or total HubZone set-aside. For purposes of this clause, “cost of the contract” includes all direct and indirect costs, excluding profit or fees. “Cost of contract performance incurred for personnel” means direct labor costs and any overhead which has only direct labor as its base, plus the concern’s general and administrative overhead rate multiplied by the labor cost.

(e) Contract Clause 52.219-14, ***LIMITATIONS ON SUBCONTRACTING***, is the applicable requirement for awards to small business concerns for solicitations that were fully or partially set-aside for Small Business, 8(a), or award to a small disadvantaged business (SDB) concern on an unrestricted procurement where an SDB concern has claimed a price evaluation preference (but see next paragraph for suspension of the SDB price preference).

(f) The Director of Defense Procurement and Acquisition Policy has suspended the use of the price evaluation adjustment for SDBs in DoD procurements (FAR Clause 52.219-23), as required by 10 U.S.C. 2323(e)(3), because

DoD exceeded its 5 percent goal for contract awards to SDBs in fiscal year ~~2007~~2008. The suspension will be in effect for 1 year and will be reevaluated based on the level of DoD contract awards to SDBs achieved in fiscal year ~~2006~~2008. This suspension applies to all solicitations issued during the period from March ~~10~~13, ~~2008~~ 2009 to March ~~9~~12, ~~2009~~2010. Said FAR Clause is not included in or made a part of this RFP. FAR Clause 52.219-4, relating to a 10% price evaluation preference for HUB ZONE small business concerns, is included in and made a part of this RFP. PLEASE NOTE HOWEVER, that paragraph (b) (3) of the FAR Clause 52.219-4, is inapplicable also due to the referenced suspension of FAR Clause 52.219-23.

1.5. PARTNERING (AUG 97)

In order to most effectively accomplish this contract, the Government proposes to form a partnership with the Contractor to develop a cohesive building team. It is anticipated that this partnership would involve the Corps of Engineers, Not anticipated., the Contractor, primary subcontractors and the designers. This partnership would strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve a quality project within budget and on schedule. This partnership would be bilateral in membership and participation will be totally voluntary. All costs, excluding labor and travel expenses, shall be shared equally between the Government and the Contractor. The Contractor and Government shall be responsible for their own labor and travel costs.

1.6. KEY PERSONNEL, SUBCONTRACTORS AND OUTSIDE ASSOCIATES OR CONSULTANTS (MAY 2006)

In connection with this contract, any in-house personnel, subcontractors, and outside associates or consultants will be limited to individuals or firms that were specifically identified in the Contractor's accepted proposal. The Contractor shall obtain the Contracting Officer's written consent before making any substitution for these designated in-house personnel, subcontractors, associates, or consultants. If the Contractor proposes a substitution, it shall submit the same type of information that was submitted in the accepted proposal to the Contracting Officer for evaluation and approval. The level of qualifications and experience submitted in the accepted proposal or that required by the Solicitation, whichever is greater, is the minimum standard for any substitution.

1.7. RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN (MAY 02)

(a) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other non-construction services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiency in its designs, drawings, specifications, and other non-construction services and perform any necessary rework or modifications, including any damage to real or personal property, resulting from the design error or omission.

(b) The standard of care for all design services performed under this agreement shall be the care and skill ordinarily used by members of the architectural or engineering professions practicing under similar conditions at the same time and locality. Notwithstanding the above, in the event that the contract specifies that portions of the Work be performed in accordance with a performance standard, the design services shall be performed so as to achieve such standards.

(c) Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contact shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract. The Contractor shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Contractor's negligent performance of any of these services furnished under this contract.

(d) The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.

(e) If the Contractor is comprised of more than one legal entity, each entity shall be jointly and severally liable hereunder.

1.8. WARRANTY OF DESIGN (FIRM-FIXED PRICE DESIGN-BUILD CONTRACT) (MAY 02)

(a) The Contractor warrants that the design shall be performed in accordance with the Contract requirements. Design and design related construction not conforming to the Contract requirements shall be corrected at no

additional cost to the Government. The standard of care for design is defined in paragraph (b) of Special Contract Requirement ***RESPONSIBILITY OF THE CONTRACTOR FOR DESIGN***.

(b) The period of this warranty shall commence upon final completion and the Government's acceptance of the work, or in the case of the Government's beneficial occupancy of all or part of the work for its convenience, prior to final completion and acceptance, at the time of such occupancy.

(c) This design warranty shall be effective from the above event through the Statute of Limitations and Statute of Repose, as applicable to the state that the project is located in.

(d) The rights and remedies of the Government provided for under this clause are in addition to any other rights and remedies provided in this contract or by law.

1.9. CONSTRUCTOR'S ROLE DURING DESIGN (JUN 98)

The Contractor's construction management key personnel shall be actively involved during the design process to effectively integrate the design and construction requirements of this contract. In addition to the typical required construction activities, the constructor's involvement includes, but is not limited to actions such as: integrating the design schedule into the Master Schedule to maximize the effectiveness of fast-tracking design and construction (within the limits allowed in the contract), ensuring constructability and economy of the design, integrating the shop drawing and installation drawing process into the design, executing the material and equipment acquisition programs to meet critical schedules, effectively interfacing the construction QC program with the design QC program, and maintaining and providing the design team with accurate, up-to-date redline and as-built documentation. The Contractor shall require and manage the active involvement of key trade subcontractors in the above activities.

1.10. VALUE ENGINEERING AFTER AWARD (JUNE 99)

(a) In reference to Contract Clause 52.248-3, ***VALUE ENGINEERING - CONSTRUCTION***, the Government may refuse to entertain a “Value Engineering Change Proposal” (VECP) for those “performance oriented” aspects of the Solicitation documents which were addressed in the Contractor's accepted contract proposal and which were evaluated in competition with other offerors for award of this contract.

(b) The Government may consider a VECP for those “prescriptive” aspects of the Solicitation documents, not addressed in the Contractor's accepted contract proposal or addressed but evaluated only for minimum conformance with the Solicitation requirements.

(c) For purposes of this clause, the term “performance oriented” refers to those aspects of the design criteria or other contract requirements which allow the Offeror or Contractor certain latitude, choice of and flexibility to propose in its accepted contract offer a choice of design, technical approach, design solution, construction approach or other approach to fulfill the contract requirements. Such requirements generally tend to be expressed in terms of functions to be performed, performance required or essential physical characteristics, without dictating a specific process or specific design solution for achieving the desired result.

(d) In contrast, for purposes of this clause, the term “prescriptive” refers to those aspects of the design criteria or other Solicitation requirements wherein the Government expressed the design solution or other requirements in terms of specific materials, approaches, systems and/or processes to be used. Prescriptive aspects typically allow the Offerors little or no freedom in the choice of design approach, materials, fabrication techniques, methods of installation or other approach to fulfill the contract requirements.

1.11. DEVIATING FROM THE ACCEPTED DESIGN (JUN 02)

(a) The Contractor shall obtain the approval of the Designer of Record and the Government's concurrence for any Contractor proposed revision to the professionally stamped and sealed and Government reviewed and concurred design, before proceeding with the revision.

(b) The Government reserves the right to non-concur with any revision to the design, which may impact furniture, furnishings, equipment selections or operations decisions that were made, based on the reviewed and concurred design.

(c) Any revision to the design, which deviates from the contract requirements (i.e., the Request for Proposals and the accepted proposal), will require a modification, pursuant to the Changes clause, in addition to Government concurrence. The Government reserves the right to disapprove such a revision.

(d) Unless the Government initiates a change to the contract requirements, or the Government determines that the Government furnished design criteria are incorrect and must be revised, any Contractor initiated proposed change to the contract requirements, which results in additional cost, shall strictly be at the Contractor's expense.

(e) The Contractor shall track all approved revisions to the reviewed and accepted design and shall incorporate them into the as-built design documentation, in accordance with agreed procedures. The Designer of Record shall document its professional concurrence on the as-builts for any revisions in the stamped and sealed drawings and specifications.

1.12. GOVERNMENT-FURNISHED RFP DRAWINGS, SURVEYS AND SPECIFICATIONS (JUL 02)

This is to clarify that contract clause 252.236-7001, ***CONTRACT DRAWINGS AND SPECIFICATIONS***, refers to any Government-furnished design or design criteria included in the Request for Proposal (RFP).

1.13. GOVERNMENT-FURNISHED SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (JUL 03)

This is to clarify that contract clause 252.236-21, ***SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION***, refers to any specifications and drawings furnished in the Request for Proposal (RFP). The term “specifications” refers to the design criteria or scope of work, in addition to any attached specifications.

1.14. GOVERNMENT RE-USE OF DESIGN (MAY 06)

In conjunction with the Clause 252.227-7022, ***GOVERNMENT RIGHTS UNLIMITED***, the Government will not ask for additional originals or copies of the design works after the Contractor provides all required design documentation and as-built documentation under the instant contract. Further, if the Government uses the design for other projects without additional compensation to the Contractor for re-use, the Government releases the Contractor from liability in the design on the other projects, due to defects in the design that are not the result of fraud, gross mistake as amounts to fraud, gross negligence or intentional misrepresentation.

1.15. ADDITIONAL MONTHLY INCENTIVE PROGRESS PAYMENT (MAY 06)

(a) As an incentive for maintaining satisfactory progress, The Government offers to make an interim monthly progress payment for satisfactory design and construction work in compliance with the contract, while construction operations are underway, up to turnover of the facilities to the Government. This is a second monthly progress payment, in between the regular monthly progress payment that is described in Contract Clause 52.232-5, ***PAYMENTS UNDER FIXED PRICE CONSTRUCTION CONTRACTS***.

(b) As a condition for the additional progress payment, the Contractor must maintain progress within 2% of scheduled progress and within 7 calendar days of the scheduled progress along the critical path(s) at the time of submission.

(c) All requirements of the contract clauses PAYMENTS UNDER FIXED PRICE CONSTRUCTION CONTRACTS and 52.232-25, PROMPT PAYMENT, will apply to the interim progress payment. In lieu of submitting an updated progress schedule to substantiate the amounts included in the interim progress payment, the Contracting Officer will determine what documentation is required to support an interim payment, including the required Prompt Payment Certification. For the next regular monthly progress payment following an interim payment, the Contractor shall reconcile the interim progress payment against actual progress.

1.16. US ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL (MAR 08)

In accordance with Contract Clause 52.236-13, ***ACCIDENT PREVENTION***, the Contractor shall comply with the latest version of Engineer Manual 385-1-1, including any interim revisions, in effect at the time of the solicitation. For task orders, the effective date of the Engineer Manual and any interim revisions will be the date of the request for task order proposal. EM 385-1-1 and its changes are available at http://www.hq.usace.army.mil/hqhome/ . At the HQ homepage, select HQ Offices, scroll to Safety & Occ. Health; at the Safety and Occupational Health Home page, select EM 385-1-1, then most recent dated edition & changes, English Version (controlling with changes), then Changes to EM 385-1-1.

1.17. SUPPLEMENTAL PRICE BREAKDOWN INFORMATION:

After contract award, the Government will require the Contractor to provide a cost breakdown of each facility by square foot, including major building systems to the five-foot line, for programming validation purposes. There will be no separate payment for this information and the Contractor shall include it in the contract price. The Government will provide a format with the directive.

1.18. SITE SAFETY AND HEALTH OFFICER REQUIREMENTS AND QUALIFICATIONS (APR 08)

(a) The Contractor shall employ a competent person at each project to function as the Site Safety and Health Officer (SSHO) in accordance with EM 385-1-1, Section 01.A.17. Unless otherwise specified in a specific Task Order, based on project size and complexity, the SSHO will have at least the minimum qualifications listed below. Submit the qualifications of the proposed SSHO for Government Approval.

(b) The following is applicable for Task Orders with three or less major structures of the same type construction being built simultaneously and those structures having 3 stories or less, mid-size maintenance or storage facilities, paving and/or landscaping, and other projects with similar moderate construction hazards:

(1) The SSHO may be a collateral duty responsibility. The SSHO shall have, as a minimum:

(i) 3 years safety work on similar type construction, and

(ii) The 30-hour OSHA construction safety class or equivalent within last 3 years and

(iii) Competent person training as required based on applicability (Scaffolds, Cranes, Fall Protection, Confined space, or others).

(a) The following requirements apply to Task Orders for projects with buildings taller than 3 stories, more than one facility type, more than three major structures being constructed simultaneously, large maintenance or complex industrial facilities, or other projects with similar substantial construction hazards, in lieu of the above qualifications:

(1) The SSHO duties will be the employee's sole, full-time responsibility. The SSHO shall have, as a minimum:

(i) 5 years safety work on similar type construction, and

(ii) The 30-hour OSHA construction safety class or equivalent within the last 5 years, and

(iii) An average of at least 24 hours of formal safety training each year for the past 3 years, and

(iv) Competent person training as required based on applicability (Scaffolds, Cranes, Fall Protection, Confined space, or others).

(a) The following additional requirements apply to Task Orders for projects involving the handling, treatment, removal and/or disposal of asbestos, lead, or Hazardous Materials/Waste:

(1) In the event this project involves hazardous, toxic or radioactive waste (HTRW) operations, additional site safety personnel qualifications and training are found in EM 385-1-1, 28.A.02 b.(3). In the event this project involves the handling, treatment, removal and/or disposal of asbestos, personnel qualifications and training shall be consistent with those specified in UFGS SECTION 02 82 14.00 10 titled ASBESTOS HAZARD CONTROL ACTIVITIES. In the event this project involves the abatement of lead based paint hazards, personnel qualifications and training shall be consistent with those specified in UFGS SECTION 01 83 13 LEAD IN CONSTRUCTION, and/or UFGS 01 83 19 for TARGET HOUSING AND CHILD OCCUPIED FACILITIES, depending on site applicability.

1.19. COORDINATION WITH OTHER CONTRACTORS

Task orders may be executed on sites with multiple contractors. Minimize interference and inconvenience through cooperation with other authorized contractors. See Contract Clause 52.236-8, Other Contracts.

1.20. CONTRACTOR PERFORMANCE EVALUATION

In accordance with the provisions of Subpart 36.201 (Evaluation of Contractor Performance) of the Federal Acquisition Regulation (FAR), construction contractor's performance shall be evaluated throughout the performance of the contract. The United States Army Corps of Engineers (USACE) follows the procedures outlined in Engineering Regulation 415-1-17 to fulfill this FAR requirement. For construction contracts and task orders awarded at or above $100,000.00, the USACE will evaluate contractor's performance and prepare a performance report using the Construction Contractor Appraisal Support System (CCASS), which is now a web-based system. After an evaluation (interim or final) is written up by the USACE, the contractor will have the ability to access,

review and comment on the evaluation for a period of 30 days. Accessing and using CCASS requires specific software, called PKI certification, which is installed on the user's computer. The certification is a Department of Defense requirement and was implemented to provide security in electronic transactions. The certification software could cost approximately $110 - $125 per certificate per year and is purchased from an External Certificate Authorities (ECA) vendor. Current information about the PKI certification process and for contacting vendors can be found on the web site: http://www.cpars.csd.disa.mil/. If the Contractor wishes to participate in the performance evaluation process, access to CCASS and PKI certification is the sole responsibility of the Contractor.

1.21. NOTICE TO PROCEED

Proof of insurance must be provided within 10 calendar days of contract award. Performance and payment bonds must be provided within 10 calendar days of the contractor's receipt of the Task Order. A Notice to Proceed for each Task Order will not be issued until the Government is in receipt of proof of insurance and acceptable performance and payment bonds.

1.22. BONDING REQUIREMENTS

Performance and payment bonds will be provided on a task-order basis, except that if a task order is not issued concurrently with the contract award or the exercise of an option period, the Contractor will be required to provide a performance and a payment bond each in the amount of 100% of the minimum guaranteed amount ($) for the base period. When the next subsequent task order is issued, the contractor will be required to either increase the penal amounts of the existing bonds or obtain additional or new bonds such that the penal amounts of the performance and payment bonds each equal 100% of the task order price. Full bonding is required for the minimum guaranteed amount and for each task order, even those not exceeding $100,000.

1.23. SCHEDULES, PLANS, AND SUBMITTALS REQUIRED BY THE TECHNICAL SPECIFICATIONS

The Contractor will be required to provide the schedule, plans, and submittals required by the Technical Specifications on a Task Order basis, unless otherwise directed by the Contracting Officer.

1.24. INDEFINITE-DELIVERY CONTRACTS

(a) This contract is an indefinite-delivery indefinite-quantity (IDIQ) contract. All work shall be performed through issuance of task orders. The Contractor shall perform no work under this contract unless a written task order, signed by the Contracting Officer, has been issued by the Government. The Contractor shall complete all work described in the scope of work for each task order within the performance period of each task order. A Corps of Engineers, Fort Worth District Contracting Officer is the only person authorized to issue task orders against this contract, unless otherwise authorized by the Contracting Officer. Task Orders may be issued via FACSIMILE, with hard copy of the task order to follow. The effective date of the task order, if FACSIMILE is used, is the date the Government receives verbal or written confirmation of receipt from the Contractor.

(b) Fixed price task orders will be negotiated based on the projected level of effort required to complete the work. The pricing provided with the Sample Task Order will be used in aiding a fair and reasonable price determination. After acceptance of the fixed price task order by the Contractor, the contract price will only be adjusted to reflect changes in scope or conditions governed by other clauses (differing site conditions, etc.).

(c) The basic contract period has a guaranteed minimum amount of $24,280,575.00. The Contractor shall be paid the guaranteed minimum only if work equal to or exceeding the guaranteed minimum is not ordered in the based year of the contract. Funds other than the stated guaranteed minimum shall be obligated by issuance of individual task orders and not by this contract. The appropriate military/civil fund availability evidence shall be cited on each task order issued under the contract. The total estimated amount for the basic contract period and option periods is as stated in the Pricing Schedule, Section 00 11 00.

(d) In the event of any inconsistency between the contract and any task order, the terms and conditions of the contract shall control.

1.25. TASK ORDER CONTRACT AND DELIVERY ORDER CONTRACT OMBUDSMAN

The USACE Ombudsman is assigned to the USACE Office of the PARC, at the following address:

Headquarters, U.S. Army Corps of Engineers, Attention: CEPR-P (USACE Ombudsman), 441 G Street, N.W., Washington, D.C. 20314-1000.

## 2.0 PRODUCTS NOT USED

## 3.0 EXECUTION NOT USED

End of Section 00 73 00 (ID\IQ)

**SECTION 00 73 10 (TASK ORDER**
REV 1.1 – 15 JAN 2008

**SUPPLEMENTAL CONTRACT REQUIREMENTS**

## 1.0 GENERAL

1.1. COST LIMITATION

1.2. 52.211-10 COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK (APR 1984).

1.3. 52.211-12 LIQUIDATED DAMAGES – CONSTRUCTION (SEP 2000).

1.4. 252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000).

1.5. TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15) (OCT 1989).

1.6. PHYSICAL DATA (FAR 52.236-4) (APR 1984).

1.7. IDENTIFICATION OF GOVERNMENT-FURNISHED PROPERTY.

1.8. PAYMENT FOR MATERIALS DELIVERED OFF-SITE (EFARS 52.232-5000) (MAR 1995).

1.9. TASK ORDER SITE SAFETY AND HEALTH OFFICER REQUIREMENTS AND QUALIFICATIONS (DEC 06)

1.10 RESTRICTED ACCESS TO PT ROUTES

**1.0 GENERAL**

1.1. COST LIMITATION

The cost limitation for this task order is $0.00

1.2. 52.211-10 COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK (APR 1984).

[Method Error - ContractInfoSuppReq : Rep_Commencement]

1.3. 52.211-12 LIQUIDATED DAMAGES – CONSTRUCTION (SEP 2000).

[Method Error - ContractInfoSuppReq : Rep_Damages]

1.4. 252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000).

[Method Error - ContractInfoSuppReq : Rep_Drawings]

1.5. TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15) (OCT 1989).

[Method Error - ContractInfoSuppReq : Rep_TimeExtentions]

1.6. PHYSICAL DATA (FAR 52.236-4) (APR 1984).

[Method Error - ContractInfoSuppReq : Rep_Physical]

1.7. IDENTIFICATION OF GOVERNMENT-FURNISHED PROPERTY.

[Method Error - ContractInfoSuppReq : Rep_Property]

1.8. PAYMENT FOR MATERIALS DELIVERED OFF-SITE (EFARS 52.232-5000) (MAR 1995).

[Method Error - ContractInfoSuppReq : Rep_Offsite]

1.9. TASK ORDER SITE SAFETY AND HEALTH OFFICER REQUIREMENTS AND QUALIFICATIONS (DEC 06)

(a) The SSHO may be a collateral duty responsibility. The SSHO shall have, as a minimum:

(1) 3 years safety work on similar type construction, and

(2) The 30-hour OSHA construction safety class or equivalent within last 3 years and

(3) Competent person training as required based on applicability (Scaffolds, Cranes, Fall Protection, Confined space, or others).

(b) In the event this project involves hazardous, toxic or radioactive waste (HTRW) operations, additional site safety personnel qualifications and training are found in EM 385-1-1, 28.A.02 b.(3). In the event this project involves the handling, treatment, removal and/or disposal of asbestos, personnel qualifications and training shall be consistent with those specified in UFGS SECTION 02 82 14.00 10 titled ASBESTOS HAZARD CONTROL ACTIVITIES. In the event this project involves the abatement of lead based paint hazards, personnel qualifications and training shall be consistent with those specified in UFGS SECTION 01 83 13 LEAD IN CONSTRUCTION, and/or UFGS 01 83 19 for TARGET HOUSING AND CHILD OCCUPIED FACILITIES, depending on site applicability.

1.10 RESTRICTED ACCESS TO PT ROUTES

There will be NO crossing of PT ROUTES by traffic of any kind from 0630-0800 local time, Monday-Friday. See Appendix T for Map of Restricted Access to PT Routes.

End of Section 00 73 10

**SECTION 01 32 01.00 10**
REV 4.1 - 31 JUL 2009

**PROJECT SCHEDULE**

**1.0 GENERAL**

1.1. REFERENCES

1.2. QUALIFICATION

**2.0 PRODUCTS (NOT APPLICABLE)**

**3.0 EXECUTION**

3.1. GENERAL REQUIREMENTS

3.2. BASIS FOR PAYMENT AND COST LOADING

3.3. PROJECT SCHEDULE DETAILED REQUIREMENTS

3.4. PROJECT SCHEDULE SUBMISSIONS

3.5. SUBMISSION REQUIREMENTS

3.6. PERIODIC SCHEDULE UPDATE MEETINGS

3.7. REQUESTS FOR TIME EXTENSIONS

3.8. DIRECTED CHANGES

3.9. WEEKLY PROGRESS MEETINGS

3.10. OWNERSHIP OF FLOAT

3.11. TRANSFER OF SCHEDULE DATA INTO RMS/QCS

## 1.0 GENERAL

### 1.1. REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

- U.S. ARMY CORPS OF ENGINEERS (USACE) ER 1-1-11 (1995) Progress, Schedules, and Network Analysis Systems http://www.usace.army.mil/publications/eng-regs/er1-1-11/entire.pdf
- Army Corps of Engineers ECB No. 2005-10, (31 August 2005) Scheduling Requirements for Testing of Mechanical Systems in Construction http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb_2005_10.pdf

### 1.2. QUALIFICATIONS

The Contractor shall designate an authorized representative who shall be responsible for the preparation of the schedule and all required updating (statusing) and preparation of reports. The authorized representative shall be experienced in scheduling projects similar in nature to this project and shall be experienced in the use of the scheduling software that meets the requirements of this specification.

## 2.0 PRODUCTS (Not Applicable)

## 3.0 EXECUTION

### 3.1. GENERAL REQUIREMENTS

3.1.1. Submit a project schedule as specified herein for approval showing the sequence in which the Contractor proposes to perform the work and dates on which the Contractor contemplates starting and completing all schedule activities. The scheduling of the entire project, including the design and construction sequences is required. Contractor management personnel shall actively participate in its development. Designers, subcontractors and suppliers working on the project shall also contribute in developing an accurate project schedule. The schedule must be a forward planning as well as a project monitoring tool. The approved project schedule shall be used to measure the progress of the work and to aid in evaluating requests for excusable time extensions. The schedule shall be cost loaded and activity coded as specified herein. The schedule will provide the basis for all progress payments. If the Contractor fails to submit any schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule

3.1.2. Status the schedule on at least a monthly basis, as specified herein. If in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress including those that may be required by the Contracting Officer, without additional cost to the Government. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained. See paragraph 3.7.4.

3.1.3. Failure of the Contractor to comply with the requirements of the Contracting Officer shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of the contract.

### 3.2. BASIS FOR PAYMENT AND COST LOADING

The schedule shall be the basis for determining contract earnings during each update period and therefore the amount of each progress payment. Lack of an approved schedule update or qualified scheduling personnel will result in an inability of the Contracting Officer to evaluate contract earned value for the purposes of payment. Failure of the Contractor to provide all information, as specified herein will result in the disapproval of the preliminary, initial and subsequent schedule updates. In the event schedule revisions are directed by the Contracting Officer and those revisions have not been included in subsequent revisions or updates, the Contracting Officer may hold retainage up to the maximum allowed by contract, each payment period, until such revisions to the

project schedule have been made. Activity cost loading shall be reasonable as determined by the Contracting Officer. The aggregate value of all activities coded to a contract CLIN as specified herein shall equal the value of the CLIN on the Schedule.

3.3. PROJECT SCHEDULE DETAILED REQUIREMENTS

The computer software system utilized to produce and update the project schedule shall be capable of meeting all requirements of this specification. Failure of the Contractor to meet the requirements of this specification will result in the disapproval of the schedule. Scheduling software that meets the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER-1-1-11(1995) referenced herein are Primavera Project Planner (P3) by Primavera, and Open Plan by Deltek.

3.3.1. Use of the Critical Path Method

Use the Critical Path Method (CPM) of network calculation to generate the project schedule. Prepare the project schedule using the Precedence Diagram Method (PDM).

3.3.2. Level of Detail Required

Develop the project schedule to an appropriate level of detail. Failure to develop the project schedule to an appropriate level of detail, as determined by the Contracting Officer, will result in its disapproval. The Contracting Officer will consider, but is not limited to, the following characteristics and requirements to determine appropriate level of detail:

3.3.2.1. Activity Durations

Reasonable activity durations are those that allow the progress of ongoing activities to be accurately determined between update periods. Less than 2 percent of all non-procurement activities shall have Original Durations (OD) greater than 20 work days or 30 calendar days. Procurement activities are defined herein.

3.3.2.2. Design and Permit Activities

Design and permit activities, including necessary conferences and follow-up actions and design package submission activities shall be included. The Contractor shall include the design schedule in the project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific contract period. This shall be at a detailed level of scheduling sufficient to identify all major design tasks, including those that control the flow of work. The schedule shall include review and correction periods associated with each item.

3.3.2.3. Procurement Activities

The schedule must include activities associated with the submittal, approval, procurement, fabrication and delivery of long lead materials, equipment, fabricated assemblies and supplies. Long lead procurement activities are those with an anticipated procurement sequence of over 90 calendar days. A typical procurement sequence includes the string of activities: submit, approve, procure, fabricate, and deliver.

3.3.2.4. Mandatory Tasks

The following tasks must be included and properly scheduled:

3.3.2.4.1. Submission, review and acceptance of design packages

3.3.2.4.2. Submission of mechanical/electrical/information systems layout drawings

3.3.2.4.3. Submission and approval of O & M manuals

3.3.2.4.4. Submission and approval of as-built drawings

3.3.2.4.5. Submission and approval of 1354 data and installed equipment lists

3.3.2.4.6. Submission and approval of testing and air balance (TAB)

3.3.2.4.7. Submission of TAB specialist design review report

3.3.2.4.8. Submission and approval of fire protection specialist

3.3.2.4.9. Submission and approval of testing and balancing of HVAC plus commissioning plans and data. Develop the schedule logic associated with testing and commissioning of mechanical systems to a level of detail consistent with Engineering and Construction Bulletin (ECB) No. 2005-10 dated 31 August 2005.

3.3.2.4.10. Air and water balancing

3.3.2.4.11. HVAC commissioning

3.3.2.4.12. Controls testing plan submission

3.3.2.4.13. Controls testing

3.3.2.4.14. Performance Verification testing

3.3.2.4.15. Other systems testing, if required

3.3.2.4.16. Contractor's pre-final inspection

3.3.2.4.17. Correction of punch list from Contractor's pre-final inspection

3.3.2.4.18. Government's pre-final inspection

3.3.2.4.19. Correction of punch list from Government's pre-final inspection

3.3.2.4.20. Final Inspection

3.3.2.5. Activity Responsibility Coding (RESP)

Assign Responsibility Code for all activities to the Prime Contractor, Subcontractor or Government agency responsible for performing the activity. Activities coded with a Government Responsibility code include, but are not limited to: Government approvals, Government design reviews, environmental permit approvals by State regulators, Government Furnished Equipment (GFE) and Notice to Proceed (NTP) for phasing requirements. Code all activities not coded with a Government Responsibility Code to the Prime Contractor or Subcontractor responsible to perform the work. Activities shall not have more than one Responsibility Code. Examples of acceptable activity code values are: DOR (for the designer of record); ELEC (for the electrical subcontractor); MECH (for the mechanical subcontractor); and GOVT (for USACE). Unacceptable code values are abbreviations of the names of subcontractors.

3.3.2.6. Activity Work Area Coding (AREA)

Assign Work Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew from working in more than one work area at a time due to restraints on resources or space. Examples of Work Area Coding include different areas within a floor of a building, different floors within a building, and different buildings within a complex of buildings. Activities shall not have more than one Work Area Code. Not all activities are required to be Work Area coded. A lack of Work Area coding will indicate the activity is not resource or space constrained.

3.3.2.7. Contract Changes/Requests for Equitable Adjustment (REA) Coding (MODF)

Assign Activity code to any activity or sequence of activities added to the schedule as a result of a Contract Modification, when approved by Contracting Officer, with a Contract Changes/REA Code. Key all Code values to the Government's modification numbering system.

Any activity or sequence of activities added to the schedule as a result of alleged constructive changes made by the Government may be added to a copy of the current schedule, subject to the approval of the Contracting Officer. Assign Activity codes for these activities with a Contract Changes/REA Code. Key the code values to the Contractor's numbering system. Approval to add these activities does not necessarily mean the Government accepts responsibility and therefore liability for such activities and any associated impacts to the schedule, but rather the Government recognizes such activities are appropriately added to the schedule for the purposes of maintaining a realistic and meaningful schedule. Such activities shall not be Responsibility Coded to the Government unless approved. An activity shall not have more than one Contract Changes/REA Code

3.3.2.8. Contract Line Item (CLIN) Coding (BIDI)

Code all activities to the CLIN on the Contract Line Item Schedule to which the activity belongs. An activity shall not contain more than one CLIN Item Code. CLIN Item code all activities, even when an activity is not cost loaded.

3.3.2.9. Phase of Work Coding (PHAS)

Assign Phase of Work Code to all activities, based upon the phase of work in which the activity occurs. Code activities to either a Design Phase or a Construction Phase. Code fast track design and construction phases proposed by the Contractor to allow filtering and organizing the schedule by fast track design and construction packages. If the contract specifies construction phasing with separately defined performance periods, identify a Construction Phase Code to allow filtering and organizing the schedule accordingly. Each activity shall have only one Phase of Work code.

3.3.2.10. Category of Work Coding (CATW)

Assign Category of Work code to all Activities based upon the category of work which the activity belongs. Category of Work Code must include, but is not limited to: Design, Design Submittal, Construction Submittal, Approval, Acceptance, Procurement, Fabrication, Delivery, Weather Sensitive Installation, Non-Weather Sensitive Installation, Start Up, Test, and Turnover. Assign a Category of Work code to each activity. Each activity shall have only one Category of Work Code.

3.3.2.11. Definable Features of Work Coding (FOW1, FOW2, FOW3)

Assign a Definable Feature of Work Code to appropriate activities based on the definable feature of work to which the activity belongs. Definable Feature of Work is defined in Specification Section 01 45 04.00 10, Contractor Quality Control. An activity shall not have more than one Definable Feature of Work Code. Not all activities are required to be Definable Feature of Work Coded.

3.3.3. Scheduled Project Completion and Activity Calendars

The schedule interval shall extend from NTP date to the required contract completion date. The contract completion activity (End Project) shall finish based on the required contract duration in the accepted contract proposal, as adjusted for any approved contract time extensions. The first scheduled work period shall be the day after NTP is acknowledged by the Contractor. Schedule activities on a calendar to which the activity logically belongs. Activities may be assigned to a 7 day calendar when the contract assigns calendar day durations for the activity such as a Government Acceptance activity. If the Contractor intends to perform physical work less than seven days per week, schedule the associated activities on a calendar with non-work periods identified including weekends and holidays. Assign the Category of Work Code - Weather Sensitive Installation to those activities that are weather sensitive. Original durations must account for anticipated normal adverse weather. The Government will interpret all work periods not identified as non-work periods on each calendar as meaning the Contractor intends to perform work during those periods.

3.3.3.1. Project Start Date

The schedule shall start no earlier than the date on which the NTP was acknowledged. Include as the first activity in the project schedule an activity called "Start Project" or "NTP". The "Start Project" activity shall have an "ES" constraint date equal to the date that the NTP was acknowledged, with a zero day duration.

3.3.3.2. Schedule Constraints and Open Ended Logic

Constrain completion of the last activity in the schedule by the contract completion date. Schedule calculations shall result in negative float when the calculated early finish date of the last activity is later than the contract completion date. Include as the last activity in the project schedule an activity called "End Project". The "End Project" activity shall have an "LF" constraint date equal to the contract completion date for the project, and with a zero day duration or by using the “project must finish by” date in the scheduling software. The schedule shall have no constrained dates other than those specified in the contract. The use of artificial float constraints such as “zero fee float” or “zero total float” are typically prohibited. There shall only be 2 open ended activities: Start Project (or NTP) with no predecessor logic and End Project with no successor logic.

3.3.3.3. Early Project Completion

In the event the Preliminary or Initial project schedule calculates an early completion date of the last activity prior to the contract completion date, the Contractor shall identify those activities that it intends to accelerate and/or those activities that are scheduled in parallel to support the Contractor's "early" completion. The last activity shall have a late finish constraint equal to the contract completion date and the schedule will calculate positive float. The Government will not approve an early completion schedule with zero float on the longest path. The Government is under no obligation to accelerate activities for which it is responsible to support a proposed early contract completion.

3.3.4. Interim Completion Dates

Constrain contractually specified interim completion dates to show negative float when the calculated early finish date of the last activity in that phase is later than the specified interim completion date.

3.3.4.1. Start Phase

Include as the first activity for a project phase an activity called "Start Phase X" where "X" refers to the phase of work. The “Start Phase X" activity shall have an "ES" constraint date equal to the date on which the NTP was acknowledged, and a zero day duration.

3.3.4.2. End Phase

Include as the last activity for a project phase an activity called "End Phase X" where "X" refers to the phase of work. The "End Phase X" activity shall have an "LF" constraint date equal to the specified completion date for that phase and a zero day duration.

3.3.4.3. Phase “X” Hammock

Include a hammock type activity for each project phase called "Phase X" where "X" refers to the phase of work. The "Phase X" hammock activity shall be logically tied to the earliest and latest activities in the phase.

3.3.5. Default Progress Data Disallowed

Do not automatically update Actual Start and Finish dates with default mechanisms that may be included in the scheduling software. Activity Actual Start (AS) and Actual Finish (AF) dates assigned during the updating process shall match those dates provided from Contractor Quality Control Reports. Failure of the Contractor to document the AS and AF dates on the Daily Quality Control report for every in-progress or completed activity, and failure to ensure that the data contained on the Daily Quality Control reports is the sole basis for schedule updating shall result in the disapproval of the Contractor's updated schedule and the inability of the Contracting Officer to evaluate Contractor progress for payment purposes. Updating of the percent complete and the remaining duration of any activity shall be independent functions. Disable program features which calculate one of these parameters from the other.

3.3.6. Out-of-Sequence Progress

Activities that have progressed before all preceding logic has been satisfied (Out-of-Sequence Progress) will be allowed only on a case-by-case basis subject to approval by the Contracting Officer. Propose logic corrections to eliminate all out of sequence progress or justify not changing the sequencing for approval prior to submitting an updated project schedule. Correct out of sequence progress that continues for more than two update cycles by logic revision, as approved by the Contracting Officer.

3.3.7. Negative Lags and Start to Finish Relationships

Lag durations contained in the project schedule shall not have a negative value. Do not use Start to Finish relationships (SF).

3.3.8. Calculation Mode

Schedule calculations shall retain the logic between predecessors and successors even when the successor activity starts and the predecessor activity has not finished. Software features that in effect sever the tie between predecessor and successor activities when the successor has started and the predecessor logic is not satisfied ("progress override") will not be allowed.

3.3.9. Milestones

The schedule must include milestone activities for each significant project event including but not limited to: milestone activities for each fast track design package released for construction; design complete; foundation/substructure construction complete; superstructure construction complete; building dry-in or enclosure complete to allow the initiation of finish activities; permanent power complete; and building systems commissioning complete.

3.4. PROJECT SCHEDULE SUBMISSIONS

Provide the submissions as described below. The data CD, reports, and network diagrams required for each submission are contained in paragraph SUBMISSION REQUIREMENTS.

3.4.1. Preliminary Project Schedule Submission

Submit the Preliminary Project Schedule, defining the Contractor's planned operations for the first 90 calendar days for approval within 15 calendar days after the NTP is acknowledged. The approved Preliminary Project Schedule will be used for payment purposes not to exceed 90 calendar days after NTP. Completely cost load the Preliminary Project Schedule to balance the contract award CLINS shown on the Price Schedule. Detail it for the first 90 calendar days. It may be summary in nature for the remaining performance period. It must be early start and late finish constrained and logically tied as previously specified. The Preliminary Project Schedule forms the basis for the Initial Project Schedule specified herein and must include all of the required Plan and Program preparations, submissions and approvals identified in the contract (for example, Quality Control Plan, Safety Plan, and Environmental Protection Plan) as well as design activities, the planned submissions of all early design packages, permitting activities, design review conference activities and other non-construction activities intended to occur within the first 90 calendar days. Schedule any construction activities planned for the first 90 calendar days after NTP. Constrain planned construction activities by Government acceptance of the associated design package(s) and all other specified Program and Plan approvals. Activity code any activities that are summary in nature after the first 90 calendar days with Responsibility Code (RESP) and Feature of Work code (FOW1, FOW2, FOW3)

3.4.2. Initial Project Schedule Submission

Submit the Initial Project Schedule for approval within 42 calendar days after NTP. The schedule shall demonstrate a reasonable and realistic sequence of activities which represent all work through the entire contract performance period. The Initial Schedule shall be at a reasonable level of detail as determined by the Contracting Officer. The schedule shall include detailed design and permitting activities, including but not limited to identification of individual design packages, design submission, reviews and conferences; permit submissions and any required Government actions; and long lead procurement activities required prior to design completion. The Initial Project Schedule shall include the entire construction sequence and all fast track construction activities, with as much detail as is known at the time but, as a minimum, shall include all construction start and completion milestone activities, and detailed construction activities through the dry-in milestone, including all activity coding and cost loading. Include the remaining construction, including cost loading, but it may be scheduled summary in nature. As the design proceeds and design packages are developed, fully detail the remaining construction activities concurrent with the monthly schedule updating process. Constrain construction activities by Government acceptance of associated designs. When the design is complete, incorporate into the then approved schedule update all remaining detailed construction activities that are planned to occur after the dry-in milestone.

3.4.3. Design Package Schedule Submission:

With each design package submitted to the Government, submit a frag-net schedule extracted from the then current Preliminary, Initial or Updated schedule which covers the activities associated with that Design Package including construction, procurement and permitting activities.

3.4.4. Periodic Schedule Updates

Based on the result of the meeting specified in PERIODIC SCHEDULE UPDATE MEETINGS, submit periodic schedule updates. These submissions shall enable the Contracting Officer to assess Contractor's progress. If the Contractor fails or refuses to furnish the information and project schedule data, which in the judgment of the Contracting Officer or authorized representative is necessary for verifying the Contractor's progress, the Contractor shall be deemed not to have provided an estimate upon which progress payment may be made. Update the schedule to include detailed procurement and construction activities as the design progresses, but not later than the submission of the final, un-reviewed design submission for each separate design package. The Contracting Officer may require submission of detailed schedule activities for any distinct construction that is started prior to submission of a final design submission, if such activity is authorized.

3.4.5. Standard Activity Coding Dictionary

Use the activity coding structure defined in the Standard Data Exchange Format (SDEF) in ER 1-1-11, Appendix A. This exact structure is mandatory, even if some fields are not used. A template SDEF compatible schedule backup file (sdef.prx) is available on the QCS website: www.rmssupport.com. The SDEF format is as follows:

| Field | Activity Code | Length | Description |
|---|---|---|---|
| 1 | WRKP | 3 | Workers per Day |
| 2 | RESP | 4 | Responsible Party (e.g. GC, subcontractor, USACE) |
| 3 | AREA | 4 | Area of Work |
| 4 | MODF | 6 | Modification or REA number |
| 5 | BIDI | 6 | Bid Item (CLIN) |
| 6 | PHAS | 2 | Phase of Work |
| 7 | CATW | 1 | Category of Work |
| 8 | FOW1 | 10 | Feature of Work (used up to 10 characters in length) |
| 9 | FOW2 | 10 | Feature of Work (used up to 20 characters in length) |
| 10 | FOW3 | 10 | Feature of Work (used up to 30 characters in length) |

3.5. SUBMISSION REQUIREMENTS

Submit the following items for the Preliminary Schedule, Initial Schedule, and every Periodic Schedule Update throughout the life of the project:

3.5.1. Data CD's

Provide two sets of data CD's containing the project schedule in the backup format. Each CD shall also contain all previous update backup files. File medium shall be CD. Label each CD, indicating the type of schedule (Preliminary, Initial, Update), full contract number, Data Date and file names. Each schedule shall have a unique file name as determined by the Contractor.

3.5.2. Narrative Report

Provide a Narrative Report with the Preliminary, Initial, and each Periodic Update of the project schedule, as the basis of the progress payment request. The Narrative Report shall include: a description of activities along the 2 most critical paths where the total float is less than or equal to 20 work days, a description of current and anticipated problem areas or delaying factors and their impact, and an explanation of corrective actions taken or required to be taken. The narrative report is expected to communicate to the Government, the Contractor's thorough analysis of the schedule output and its plans to compensate for any problems, either current or potential, which are revealed through its analysis. Identify and explain why any activities that, based their calculated late dates, should have either started or finished during the update period but did not.

3.5.3. Approved Changes Verification

Include only those project schedule changes in the schedule submission that have been previously approved by the Contracting Officer. The Narrative Report shall specifically reference, on an activity by activity basis, all changes made since the previous period and relate each change to documented, approved schedule changes.

3.5.4. Schedule Reports

The format, filtering, organizing and sorting for each schedule report shall be as directed by the Contracting Officer. Typically reports shall contain: Activity Numbers, Activity Description, Original Duration, Remaining Duration, Early Start Date, Early Finish Date, Late Start Date, Late Finish Date Total Float, Actual Start Date, Actual Finish Date, and Percent Complete. The following lists typical reports that will be requested. One or all of these reports may be requested for each schedule submission.

3.5.4.1. Activity Report

A list of all activities sorted according to activity number.

3.5.4.2. Logic Report

A list of detailed predecessor and successor activities for every activity in ascending order sorted by activity number.

3.5.4.3. Total Float Report

A list of all incomplete activities sorted in ascending order of total float. List activities which have the same amount of total float in ascending order of Early Start Dates. Do not show completed activities on this report.

3.5.4.4. Earnings Report by CLIN

A compilation of the Contractor's Total Earnings on the project from the NTP to the data date. This report shall reflect the earnings of specific activities based on the agreements made in the schedule update meeting defined herein. Provided that the Contractor has provided a complete schedule update, this report shall serve as the basis of determining progress payments. Group activities by CLIN Item number and sort by activity number. This report shall: sum all activities coded to a particular CLIN and provide a CLIN Item percent earned value; and complete and sum CLIN items to provide a total project percent complete. The printed report shall contain, for each activity: the Activity Number, Activity Description, Original Budgeted Amount, Quantity to Date, Percent Complete (based on cost), and Earnings to Date.

3.5.5. Network Diagram

The network diagram is required for the Preliminary, Initial and Periodic Updates. The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished.

The Contracting Officer will use, but is not limited to, the following conditions to review compliance with this paragraph:

3.5.5.1. Continuous Flow

Diagrams shall show a continuous flow from left to right with no arrows from right to left. Show the activity number, description, duration, and estimated earned value on the diagram.

3.5.5.2. Project Milestone Dates

Show dates on the diagram for start of project, any contract required interim completion dates, and contract completion dates.

3.5.5.3. Critical Path

Clearly show the critical path.

3.5.5.4. Banding

Organize activities as directed to assist in the understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.

3.5.5.5. S-Curves

Earnings curves showing projected early and late earnings and earnings to date.

3.6. PERIODIC SCHEDULE UPDATE MEETINGS

Conduct periodic schedule update meetings for the purposes of reviewing the Contractor's proposed out of sequence corrections, determining causes for delay, correcting logic, maintaining schedule accuracy and determining earned value. Meetings shall occur at least monthly within five days of the proposed schedule data date and after the Contractor has updated the schedule with Government concurrence respecting actual start dates, actual finish dates, remaining durations and percent complete for each activity it intend to status.~~.~~ Match the acutal start and finish dates with the dates exported, as described in paragraph 3.3.5. Provide a computer with the scheduling software loaded and a projector during the meeting which allows all meeting participants to view the proposed schedule update during the meeting. The meeting and resultant approvable schedule update shall be a condition precedent to a formal submission of the update as described in SUBMISSION REQUIREMENTS and to the submission of an invoice for payment. The meeting will be a working interactive exchange which will allow the Government and the Contractor the opportunity review the updated schedule on a real time and interactive basis. The Contractor's authorized scheduling representative will organize, sort, filter and schedule the update as requested by the Government. The meeting will last no longer than 8 hours. A rough draft of the proposed activity logic corrections and narrative report shall be provided to the Government 48 hours in advance of the meeting. The Contractor's Project Manager and Authorized Scheduler shall attend the meeting with the Authorized Representative of the Contracting Officer.

3.6.1. Update Submission Following Progress Meeting

Submit a complete update of the project schedule containing all approved progress, revisions, and adjustments, pursuant to paragraph SUBMISSION REQUIREMENTS not later than 4 working days after the periodic schedule update meeting, reflecting only those changes made during the previous update meeting.

3.6.2. Activity Statusing

Statusing information, including Actual Start Dates (AS), Actual Finish Dates (AF), Remaining Durations (RD) and Percent Complete shall be subject to the approval of the Government prior to the meeting. As a minimum, address the following items on an activity by activity basis during each progress meeting:

3.6.2.1. Actual Start and Finish Dates

Accurately status the AS and/or AF dates for each activity currently in-progress or completed since the last update The Government may allow an AF date to be assigned with the percent complete less than 100% to account for the value of work remaining but not restraining successor activities. Only assign AS dates when actual progress occurs on an activity.

3.6.2.2. Remaining Duration

Update the estimated RD for all incomplete activities independent of Percent Complete. Remaining durations may exceed the activity OD or may exceed the activity's prior update RD if the Government considers the current OD or RD to be understated based on current progress, insufficient work crews actually manning the job, unrealistic OD or deficiencies that must be corrected that restrain successor activities.

3.6.2.3. Percent Complete

Update the percent complete for each activity started, based on the realistic assessment of earned value. Activities which are complete but for remaining minor punch list work and which do not restrain the initiation of successor activities may be statused 100 percent complete. To allow for proper schedule management, cost load the correction of punch list from Government pre-final inspection activity(ies) not less than 1% of the total contract value, which activity(ies) may be statused 100 percent complete upon completion and correction of all punch list work identified during Government pre-final inspection(s).

3.6.2.4. Logic Changes

Specifically identify and discuss all logic changes pertaining to NTP on change orders, change orders to be incorporated into the schedule, contractor proposed changes in work sequence, corrections to schedule logic for out-of-sequence progress, and other changes that have been made pursuant to contract provisions. The Government will only approve logic revisions for the purpose of keeping the schedule valid in terms of its usefulness in calculating a realistic completion date, correcting erroneous logic ties, and accurately sequencing the work.

3.6.2.5. Other Changes

Other changes required due to delays in completion of any activity or group of activities include: 1) delays beyond the Contractor's control, such as strikes and unusual weather. 2) delays encountered due to submittals, Government Activities, deliveries or work stoppages which make re-planning the work necessary. 3) Changes required to correct a schedule that does not represent the actual or planned prosecution and progress of the work.

3.7. REQUESTS FOR TIME EXTENSIONS

In the event the Contractor believes it is entitled to an extension of the contract performance period, completion date, or any interim milestone date, furnish the following for a determination by the Contracting Officer: justification, project schedule data, and supporting evidence as the Contracting Officer may deem necessary. Submission of proof of excusable delay, based on revised activity logic, duration, and costs (updated to the specific date that the delay occurred) is a condition precedent to any approvals by the Government. In response to each Request For Proposal issued by the Government, the Contractor shall submit a schedule impact analysis demonstrating whether or not the change contemplated by the Government impacts the critical path.

3.7.1. Justification of Delay

The project schedule shall clearly display that the Contractor has used, in full, all the float time available for the work involved with its request. The Contracting Officer's determination as to the number of allowable days of contract extension shall be based upon the project schedule updates in effect for the time period in question, and other factual information.

Actual delays that are found to be caused by the Contractor's own actions, which result in a calculated schedule delay, will not be a cause for an extension to the performance period, completion date, or any interim milestone date.

3.7.2. Submission Requirements

Submit a justification for each request for a change in the contract completion date of less than 2 weeks based upon the most recent schedule update at the time of the NTP or constructive direction issued for the change. Such a request shall be in accordance with the requirements of other appropriate Contract Clauses and shall include, as a minimum:

3.7.2.1. A list of affected activities, with their associated project schedule activity number.

3.7.2.2. A brief explanation of the causes of the change

3.7.2.3. An analysis of the overall impact of the changes proposed.

3.7.2.4. A sub-network of the affected area

Identify activities impacted in each justification for change by a unique activity code contained in the required data file.

3.7.3. Additional Submission Requirements

The Contracting Officer may request an interim update with revised activities for any requested time extension of over 2 weeks. Provide this disk within 4 days of the Contracting Officer's request.

3.7.4. If Progress Falls Behind the Approved Project Schedule

3.7.4.1. Should progress fall behind the approved schedule (more than 20 work days of negative float) due to Contractor generated problems, promptly provide a supplemental recovery or completion schedule that illustrates its efforts to regain time to assure a completion by the required contract completion date.

3.7.4.2. The supplemental recovery or completion schedule will not replace the original, approved schedule as the official contract schedule. Continue to update the original, approved schedule on at least a monthly basis. In addition, the Contractor and the Contracting Officer will monitor the supplemental recovery or completion schedule on at least a bi-weekly basis to determine its effect on regaining the rate of progress to assure project completion by the contractually required completion date.

3.7.4.3. Do not artificially improve progress by simply revising the schedule logic, modifying or adding constraints, or shortening future work activity durations. Resource and manpower load the supplemental recovery schedule or completion schedule with crew size and productivity for each remaining activity, indicating overtime, weekend work, and/or double shifts needed to regain the schedule, in accordance with FAR 52.236.15, without additional cost to the Government. Indicate assumptions made and the basis for any logic, constraint, or duration changes used in the creation of the supplemental recovery or completion schedule in a narrative submitted for the Contracting Officer’s approval. Any additional resources or manpower must be evident at the work site. Do not modify the official contract schedule to include these assumptions.

3.7.4.4. Failure to perform work and maintain progress in accordance with the supplemental recovery or completion schedule may result in an interim and final unsatisfactory performance rating and/or may result in corrective action by the Contracting Officer in accordance with FAR 52.236-15.

3.8. DIRECTED CHANGES

If the NTP is issued for changes prior to settlement of price and/or time, submit proposed schedule revisions to the Contracting Officer within 2 weeks of the NTP being issued. The Contracting Officer will approve proposed revisions to the schedule prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer may furnish the Contractor with suggested revisions to the project schedule. The Contractor shall include these revisions in the project schedule until revisions are submitted and final changes and impacts have been negotiated. If the Contractor has any objections to the revisions furnished by the Contracting Officer, advise the Contracting Officer within 2 weeks of receipt of the revisions. Regardless of the objections, the Contractor shall continue to update the schedule with the Contracting Officer's revisions until a mutual agreement in the revisions is reached. If the Contractor fails to submit alternative revisions within 2 weeks of receipt of the Contracting Officer's proposed revisions, the Contractor will be deemed to have concurred with the

Contracting Officer's proposed revisions. The proposed revisions will then be the basis for an equitable adjustment for performance of the work.

3.9. WEEKLY PROGRESS MEETINGS

3.9.1. The Government and the Contractor shall meet weekly (or as otherwise mutually agreed to) between the meetings described in paragraph PERIODIC SCHEDULE UPDATE MEETINGS for the purpose of jointly reviewing the actual progress of the project as compared to the as planned progress and to review planned activities for the upcoming two weeks. The then current and approved schedule update shall be used for the purposes of this meeting and for the production and review of reports. The Contractor’s Project Manager and the Authorized Representative of the Contracting Officer shall attend. The weekly progress meeting will address the status of RFI’s, RFP’s and Submittals.

3.9.2. Provide a bar chart produced by the scheduling software, organized by Total Float and Sorted by Early Start Date, and a two week “look-ahead” schedule by filtering all schedule activities to show only current ongoing activities and activities schedule to start during the upcoming two weeks, organized by Work Area Code (AREA) and sorted by Early Start Date.

3.9.3. The Government and the Contractor shall jointly review the reports. If it appears that activities on the longest path(s) which are currently driving the calculated completion date (driving activities), are not progressing satisfactorily and therefore could jeopardize timely project completion, corrective action must be taken immediately. Corrective action includes but is not limited to: increasing the number of work crews; increasing the number of work shifts; increasing the number of hours worked per shift; and determining if Government responsibility coded activities require Government corrective action.

3.10. OWNERSHIP OF FLOAT

Float available in the schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

3.11. TRANSFER OF SCHEDULE DATA INTO RMS/QCS

The Contractor shall download and upload the schedule data into the Resident Management System (RMS) prior to RMS databases being transferred to the Government and is considered to be additional supporting data in a form and detail required by the Contracting Officer pursuant to FAR 52.232-5 - Payments under Fixed-Price Construction Contracts. The receipt of a proper payment request pursuant to FAR 52.232-27 - Prompt Payment for Construction Contracts is contingent upon the Government receiving both acceptable and approvable hard copies and electronic export from QCS of the application for progress payment.

End of Section 01 32 01.00 10

**SECTION 01 33 00**
REV 3.9 - 31 OCT 2009

**SUBMITTAL PROCEDURES**

**1.0 GENERAL**

1.1. DEFINITIONS

1.2. NOT USED

1.3. SUBMITTAL CLASSIFICATION

1.4. APPROVED OR CONCURRED WITH SUBMITTALS

1.5. DISAPPROVED SUBMITTALS

1.6. WITHHOLDING OF PAYMENT

1.7. GENERAL

1.8. SUBMITTAL REGISTER

1.9. SCHEDULING

1.10. TRANSMITTAL FORM (ENG FORM 4025)

1.11. SUBMITTAL PROCEDURES

1.12. CONTROL OF SUBMITTALS

1.13. GOVERNMENT APPROVED SUBMITTALS

1.14. INFORMATION ONLY SUBMITTALS

1.15. STAMPS

~~**ATTACHMENT A SAMPLE PRELIMINARY SUBMITTAL REGISTER INPUT FORM**~~

## 1.0 GENERAL

### 1.1. DEFINITIONS

#### 1.1.1. Submittal

Contract Clauses "FAR 52.236-5, Material and Workmanship," paragraph (b) and "FAR 52.236-21, Specifications and Drawings for Construction," paragraphs (d), (e), and (f) apply to all "submittals."

#### 1.1.2. Submittal Descriptions (SD)

Submittals requirements are specified in the technical sections. Submittals are identified by SD numbers and titles as follows.

SD-01 Preconstruction Submittals

- Certificates of insurance.
- Surety bonds.
- List of proposed subcontractors.
- List of proposed products.
- Construction Progress Schedule.
- Submittal register.
- Schedule of prices.
- Accident Prevention Plan.
- Work plan.
- Quality control plan.
- Environmental protection plan.

SD-02 Shop Drawings

- Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.
- Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.
- Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

- Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.
- Samples of warranty language when the contract requires extended product warranties.

SD-04 Samples

- Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.
- Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.
- Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies that are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

- Calculations, mix designs, analyses or other data pertaining to a part of work.
- Design submittals, design substantiation submittals and extensions of design submittals.

SD-06 Test Reports

- Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must

have been within three years of date of contract award for the project.)

- Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.
- Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.
- Investigation reports.
- Daily checklists.
- Final acceptance test and operational test procedure.

SD-07 Certificates

- Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.
- Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.
- Confined space entry permits.
- Text of posted operating instructions.

SD-08 Manufacturer's Instructions

- Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data sheets concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

- Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- Factory test reports.

SD-10 Operation and Maintenance Data

- Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

SD-11 Closeout Submittals

- Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

1.1.3. Approving Authority

Office authorized to approve submittal.

1.1.4. Work

As used in this section, on- and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction.

1.2. NOT USED

1.3. SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.3.1. Designer of Record Approved (DA)

1.3.1.1. Designer of Record (DOR) approval is required for all extensions of design, critical materials, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings". ~~The Contractor shall provide~~ Provide the Government the number of copies designated hereinafter of all DOR approved submittals, after the DOR has taken appropriate action. The DOR shall ensure that submittals conform to the Solicitation, the Accepted Proposal and the completed design, however see below for those submittals proposing a deviation to the contract or a substitution of a material, system, or piece of equipment that was identified by manufacturer, brand name or model description in the accepted contract proposal.

1.3.1.2. The DOR shall ensure that the submittals comply with all applicable Buy American Act and Trade Agreement Act clauses in the contract. The DOR may confer with the Contracting Officer's Representative for advice and interpretation of those clauses, as necessary.

1.3.1.3. The Government may, but is not required to, review any or all DOR approved submittals for conformance to the solicitation, accepted proposal and the completed design. Except for submittals designated as deviating from the Solicitation, the Accepted Proposal or completed design, the Contractor may proceed with acquisition and installation upon DOR approval. Government Approved (GA)

1.3.2. Government Approved (GA)

Government approval is required for any item specifically designated as requiring Government approval in the Solicitation, for internal and external color finish selections and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

1.3.3. Government Conformance Review of Design (CR)

The Government will review all intermediate and final design submittals for conformance with the technical requirements of the solicitation. Section 01 33 16 **DESIGN AFTER AWARD** covers the design submittal and review process in detail. Review will be only for conformance with the applicable codes, standards and contract requirements. Design data includes the design documents described in Section 01 33 16 **DESIGN AFTER AWARD**. Generally, design submittals should be identified as SD-05 Design Data submittals.

1.3.4. Designer of Record Approved/Government Conformance Review (DA/CR)

1.3.4.1. Deviations to the Accepted Design. Designer of Record approval and the Government's concurrence are required for any proposed deviation from the accepted design which still complies with the contract (the Solicitation and Accepted Proposal) before the Contractor is authorized to proceed with material acquisition or installation. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings." If necessary to facilitate the project schedule, the Contractor and the DOR may discuss a submittal proposing a deviation with the Contracting Officer's Representative prior to officially submitting it to the Government. However, the Government reserves the right to review the submittal before providing an opinion, if it deems it necessary. In any case, the Government will not formally agree to or provide a preliminary opinion on any deviation without the DOR's approval or recommended approval. The Government reserves the right to non-concur with any deviation from the design, which may impact furniture, furnishings, equipment selections or operations decisions that were made, based on the reviewed and concurred design.

1.3.4.2. Substitutions. Unless prohibited or provided for otherwise elsewhere in the Contract, where the accepted contract proposal named products, systems, materials or equipment by manufacturer, brand name and/or by model number or other specific identification, and the Contractor desires to substitute manufacturer or model after award, ~~the Contractor shall~~ submit a requested substitution for Government concurrence. ~~The submittal shall include~~ Include substantiation, identifying information and the DOR's approval, as meeting the contract requirements and that it is equal in function, performance, quality and salient features to that in the accepted contract proposal.

1.3.5. Designer of Record Approved/Government Approved (DA/GA)

Any proposed deviation to the solicitation and/or the accepted proposal constitutes a change to the contract. In addition to the above stated requirements for proposed deviations to the accepted design, both Designer of Record and Government Approval and, where applicable, a contract modification are required before the Contractor is

authorized to proceed with material acquisition or installation for any proposed deviation to the contract ~~(the solicitation and/or the accepted proposal), which constitutes a change to the contract terms~~. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction", they are considered to be "shop drawings". The Government reserves the right to accept or reject any such proposed deviation at its discretion.

1.3.6. Information Only

All submittals not requiring Designer of Record or Government approval will be for information only. ~~The Contractor shall provide~~ Provide the Government "For Information Only" copies of all submittals not requiring Government approval or concurrence, after the Designer of Record has taken the appropriate action.

1.4. APPROVED OR CONCURRED WITH SUBMITTALS

Do not construe the~~The~~ Contracting Officer's approval of or concurrence with submittals ~~shall not be construed~~ as a complete check, but ~~will indicate~~ only that design, general method of construction, materials, detailing and other information appear to meet the Solicitation and Accepted Proposal. Approval or concurrence will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for design, dimensions, all design extensions, such as the design of adequate connections and details, etc., and the satisfactory construction of all work. ~~After submittals have been approved by the Contracting Officer, no re-submittal for the purpose of substituting materials or equipment will be considered~~ The Government won't consider re-submittals for the purpose of substituting previously approved materials or equipment unless accompanied by an explanation of why a substitution is necessary.

1.5. DISAPPROVED SUBMITTALS

~~The Contractor shall make~~ Make all corrections required by the Contracting Officer, obtain the Designer of Record's approval when applicable, and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. Resubmit ~~Any~~ any "information only" submittal found to contain errors or unapproved deviations from the Solicitation or Accepted Proposal ~~shall be resubmitted~~ as one requiring "approval" action, requiring both Designer of Record and Government approval. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, ~~a~~ provide prompt notice in accordance with the Contract Clause "Changes" ~~shall be given promptly~~ to the Contracting Officer.

1.6. WITHHOLDING OF PAYMENT

No payment for materials incorporated in the work will be made if all required Designer of Record or required Government approvals have not been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

1.7. GENERAL

~~The Contractor shall m~~Make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, the Contractor's Quality Control (CQC) System Manager and the Designer of Record, if applicable, shall check, approve, sign, and stamp all items ~~shall be checked, approved, stamped, signed, and dated by the Contractor's Quality Control (CQC) System Manager and the Designer of Record, if applicable~~, indicating action taken. Clearly idenify ~~Proposed~~ proposed deviations from the contract requirements ~~shall be clearly identified~~. ~~Submittals shall include~~ Include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Schedule and make ~~Submittals~~ submittals requiring Government approval ~~shall be scheduled and made~~ prior to the acquisition of the material or equipment covered thereby. Pick up and dispose of ~~Samples~~ samples remaining upon completion of the work ~~shall be picked up and disposed of~~ in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

1.8. SUBMITTAL REGISTER (GA)

~~The Contractor shall develop~~ Develop a complete list of submittals, including each separate design package submittal. ~~The Contractor shall submit~~ Submit the initial submittal register within 15 days after Notice to Proceed, including, as a minimum, the design packages and other initial submittals required elsewhere in the contract. The Designer of Record shall identify required submittals in the specifications, and use the list to prepare the Submittal Register, utilizing the government-provided software, QCS (see Section 01 45 01.10), to create the ENG Form 4288. Appendix R~~Attachment A, herein,~~ is a ~~sample~~ preliminary submittal register input form for use with the Quality Management System and the Resident Office Management System (QCS and RMS). The Government will provide the Contractor the actual Excel Spreadsheet version of this sample input form after award to modify and to use for input into QCS. The Excel Spreadsheet is not totally inputable into QCS, so additional keystroke input will be necessary. The sample input form is not all-inclusive. In addition, additional submittals may be required by other parts of the contract. After award, the parties will meet to discuss contract specific (or task order specific for a task order contract) distribution for the submittals all-inclusive and additional submittals may be required by other parts of the contract. ~~The Contractor shall develop~~ Develop and complete the submittal register as the design is completed. ~~The Contractor shall submit~~ Submit it to the Contracting Officer with the un-reviewed final design package submission or as soon as the design specifications are completed, if before the final design submission. When applicable, if the Contractor elects to fast track design and construction, using multiple design package submissions,update the submittal register ~~shall be updated~~ to reflect the submittals associated with each design submission, clearly denoting all revisions to the previous submission. The submittal register ~~will~~ serves as a scheduling document for submittals and for control of~~and will be used to control~~ submittal actions throughout the contract period. Coordinate ~~The~~ the submit dates and need dates used in the submittal register ~~shall be coordinated~~ with dates in the Contractor prepared progress schedule. Submit montly ~~Updates~~ updates to the submittal register showing the Contractor action codes and actual dates with Government action codes and actual dates ~~shall be submitted monthly~~ or until all submittals have been satisfactorily completed. Revise and submit the submittal register when revising the progress schedule.~~When the progress schedule is revised, the submittal register shall also be revised and submitted.~~

1.9. SCHEDULING

Schedule ~~Submittals~~ submittals covering component items forming a system or items that are interrelated ~~shall be scheduled~~ to be coordinated and submitted concurrently. Schedule ~~Certifications~~ certifications to be submitted with the pertinent drawings ~~shall be so scheduled~~. Allow ~~Adequate~~ adequate time (a minimum of 15 calendar days exclusive of mailing time) ~~shall be allowed~~ and show~~n~~ on the register for those items requiring Government approval or concurrence. No delay damages or time extensions will be allowed for time lost in late submittals by the Contractor.

1.10. TRANSMITTAL FORM (ENG FORM 4025)

Use the transmittal form (ENG Form 4025) for submitting submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor or are included in the QCS software if the Contractor is required to use QCS for this contract. Use a separate transmittal form for each specification section Complete this form by filling out all the heading blank spaces and identify each item submitted. Exercise special care to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

1.11. SUBMITTAL PROCEDURES

Make ~~Submittals~~ submittals ~~shall be made~~ as follows:

1.11.1. Procedures

The Government will further discuss detailed submittal procedures with the Contractor at the Post-Award Conference.

1.11.2. Deviations

For submittals which include proposed deviations requested by the Contractor, check the column "variation" of ENG Form 4025 ~~shall be checked~~. ~~The Contractor shall set~~ Set forth in writing the reason for any deviations and

annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

1.12. CONTROL OF SUBMITTALS

~~The Contractor shall carefully~~ Carefully control his procurement operations to ensure that each individual submittal is made on or before the ~~Contractor~~ scheduled submittal date shown on the approved "Submittal Register."

1.13. GOVERNMENT APPROVED OR CONCURRED WITH SUBMITTALS

Upon completion of review of submittals requiring Government approval or concurrence, the Government will stamp and date the submittals as approved or concurred.~~the submittals will be identified as having received approval by being so stamped and dated~~. The Government will retain two (2) copies of the submittal ~~will be retained by the Contracting Officer~~ and return two (2) copy(ies) of the submittal ~~will be returned to the Contractor~~.

1.14. INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

1.15. STAMPS

Use stamps similar to the following~~Stamps used by the Contractor~~ on the submittal data to certify that the submittal meets contract requirements ~~shall be similar to the following~~:

CONTRACTOR

(FIRM NAME)

_____ Approved

_____ Approved with corrections as noted on submittal data and/or attached sheet(s)

Signature: _____

Title: _____

Date: _____

**For design-build construction, both the Contractor Quality Control System Manager and the Designer of Record shall stamp and sign to certify that the submittal meets contract requirements.**

~~**ATTACHMENT A SAMPLE PRELIMINARY SUBMITTAL REGISTER INPUT FORM (Updated 31 AUGUST 2009)**~~

**SECTION 01 33 16**
REV 2.234 – 28 FEB 2010

**DESIGN AFTER AWARD**

**1.0 GENERAL INFORMATION**

1.1. INTRODUCTION

1.2. DESIGNER OF RECORD

**2.0 PRODUCTS (Not Applicable)**

**3.0 EXECUTION**

3.1. PRE-WORK ACTIVIES & CONFERENCES

3.1.1. Design Quality Control Plan

3.1.2. Post Award Conference

3.1.3. Partnering & Project Progress Processes

3.1.4. Initial Design Conference

3.1.5. Pre-Construction Conference

3.2. STAGES OF DESIGN SUBMITTALS AND OVER THE SHOULDER PROGRESS REVIEWS

3.2.1. Site/Utilities

3.2.2. Interim Design Submittals

3.2.3. Over-the-Shoulder Progress Reviews

3.2.4. Final Design Submissions

3.2.5. Design Complete Submittals

3.2.6. Holiday Periods for Government Review or Actions

3.2.7. Late Submittals and Reviews

3.3. DESIGN CONFIGURATION MANAGEMENT

3.3.1. Procedures

3.3.2. Tracking Design Review Comments

3.3.3. Design and Code Checklists

3.4. INTERIM DESIGN REVIEWS AND CONFERENCES

3.4.1. General

3.4.2. Procedures

3.4.3. Conference Documentation

3.5. INTERIM DESIGN REQUIREMENTS

3.5.1. Drawings

3.5.2. Design Analyses

3.5.3. Geotechnical Investigations and Reports

3.5.4. LEED Documentation

3.5.5. Energy Conservation

3.5.6. Specifications

3.5.7. Building Rendering

3.5.8. Interim Building Design Contents

3.6. FINAL DESIGN REVIEWS AND CONFERENCES

3.7. FINAL DESIGN REQUIREMENTS

3.7.1. Drawings

3.7.2. Design Analysis

3.7.3. Specifications

3.7.4. Submittal Register

3.7.5. Preparation of DD Form 1354 (Transfer of Real Property)

3.7.6. Acceptance and Release for Construction

3.8. DESIGN COMPLETE CONSTRUCTION DOCUMENT REQUIREMENTS

3.9. SUBMITTAL DISTRIBUTION, MEDIA AND QUANTITIES

3.9.1. Submittal Distribution and Quantities

3.9.2. Web based Design Submittals

3.9.3. Mailing of Design Submittals

3.10. AS-BUILT DOCUMENTS

**ATTACHMENT A STRUCTURAL INTERIOR DESIGN (SID) REQUIREMENTS**

**ATTACHMENT B NOT USED**

**ATTACHMENT C TRACKING COMMENTS IN DRCHECKS**

**ATTACHMENT D SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW**

**ATTACHMENT E LEED SUBMITTALS**

**ATTACHMENT F BUILDING INFORMATION MODELING REQUIREMENTS**

**ATTACHMENT G DESIGN SUBMITTAL DIRECTORY AND SUBDIRECTORY FILE ARRANGEMENT**

## 1.0 GENERAL INFORMATION

1.1. INTRODUCTION

1.1.1. The information contained in this section applies to the design required after award. After award, the Contractor will develop the accepted proposal into the completed design, as described herein.

1.1.2. The Contractor may elect to fast track the design and construction that is, proceed with construction of parts of the sitework and facilities prior to completion of the overall design. To facilitate fast tracking, the Contractor may elect to divide the design into no more than ten (10) design packages per major facility type and no more than three (3) design packages for site and associated work. The Contractor shall designate how it will package the design, consistent with its overall plan for permitting (where applicable) and construction of the project. See Sections 01 33 00 SUBMITTAL PROCEDURES and 01 32 01.00 10 PROJECT SCHEDULE for requirements for identifying and scheduling the design packaging plan in the submittal register and project schedule. See also Sections 01 10 00 STATEMENT OF WORK and 01 57 20.00 10 ENVIRONMENTAL PROTECTION for any specified permit requirements. If early procurement of long-lead item construction materials or installed equipment, prior to completion of the associated design package, is necessary to facilitate the project schedule, the Contractor shall also identify those long-lead items and how it will assure design integrity of the associated design package to meet the contract requirements (The Contract consists of the Solicitation requirements and the accepted proposal). Once the Government is satisfied that the long-lead items meet the contract requirements, the Contracting Officer will allow the Contractor to procure the items at its own risk.

1.1.3. The Contractor may proceed with the construction work included in a separate design package after the Government has reviewed the final (100%) design submission for that package, review comments have been addressed and resolved to the Government's satisfaction and the Contracting Officer (or the Administrative Contracting Officer) has agreed that the design package may be released for construction.

1.1.4. INTEGRATED DESIGN. To the maximum extent permitted for this project, use a collaborative, integrated design process for all stages of project delivery with comprehensive performance goals for siting, energy, water, materials and indoor environmental quality and ensures incorporation of these goals. Consider all stages of the building lifecycle, including deconstruction.

1.2. DESIGNER OF RECORD

The Design-Build Contractor (“Design-Builder”, “D-B” or simply “Contractor”) shall identify, for approval, the Designer of Record (“DOR”) that will be responsible for each area of design. One DOR may be responsible for more than one area. All areas of design disciplines shall be accounted for by a listed, Professional Registered, DOR. The DOR’s shall stamp, sign, and date each design drawing and other design deliverables under their responsible discipline at each design submittal stage (see contract clause Registration of Designers). If the deliverables are not ready for release for construction, they should be identified as "preliminary" or "not for release for construction" or by using some other appropriate designation. The DOR(s) shall also be responsible for maintaining the integrity of the design and for compliance with the contract requirements through construction and documentation of the as-built condition by coordination, review and approval of extensions of design, material, equipment and other construction submittals, review and approval or disapproval of requested deviations to the accepted design or to the contract, coordination with the Government of the above activities, and by performing other typical professional designer responsibilities.

## 2.0 PRODUCTS (Not Applicable)

## 3.0 EXECUTION

3.1. PRE-WORK ACTIVITIES & CONFERENCES

3.1.1. Design Quality Control Plan

The DB Contractor shall submit for Government acceptance, a Design Quality Control Plan in accordance with Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL before design may proceed.

3.1.2. Post Award Conference

3.1.2.1. The government will conduct a post award contract administration conference at the project site, as soon as possible after contract award. This will be coordinated with issuance of the contract notice to proceed (NTP). The Contractor and major sub-contractor representatives shall participate. All designers need not attend this first meeting. Government representatives will include COE project delivery team members, facility users, facility command representatives, and installation representatives. The Government will provide an agenda, meeting goals, meeting place, and meeting time to participants prior to the meeting.

3.1.2.2. The post award conference shall include determination and introduction of contact persons, their authorities, contract administration requirements, discussion of expected project progress processes, and coordination of subsequent meetings for quality control (see Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL), Partnering (see below and SCR: Partnering), and the initial design conference (see below).

3.1.2.3. The government will introduce COE project delivery team members, facility users, facility command representatives, and installation representatives. The DB Contractor shall introduce major subcontractors, and other needed staff. Expectations and duties of each person shall be defined for all participants. A meeting roster shall be developed and distributed by the government with complete contact information including name, office, project role, phone, mailing and physical address, and email address.

3.1.3. Partnering & Project Progress Processes

3.1.3.1. The initial Partnering conference may be scheduled and conducted at any time with or following the post award conference. The Government proposes to form a partnership with the DB Contractor to develop a cohesive building team. This partnership will involve the COE project delivery team members, facility users, facility command representatives, installation representatives, Designers of Record, major subcontractors, contractor quality control staff, and contractor construction management staff. This partnership will strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve a quality project within budget and on schedule. This partnership will be bilateral in membership and participation will be totally voluntary. All costs, excluding labor and travel expenses, shall be shared equally between the Government and the Contractor. The Contractor and Government shall be responsible for their own labor and travel costs. Normally, partnering meetings will be held at or in the vicinity of the project installation.

3.1.3.2. As part of the partnering process, the Government and Contractor shall develop, establish, and agree to comprehensive design development processes including conduct of conferences, expectations of design development at conferences, fast-tracking, design acceptance, Structural Interior Design (SID)/ Furniture, Fixtures & Equipment (FF&E) design approval, project closeout, etc. The government will explain contract requirements and the DB Contractor shall review their proposed project schedule and suggest ways to streamline processes.

3.1.4. Initial Design Conference

The initial design conference may be scheduled and conducted at the project installation any time after the post award conference, although it is recommended that the partnering process be initiated with or before the initial design conference. Any design work conducted after award and prior to this conference should be limited to site and is discouraged for other items. All Designers of Record shall participate in the conference. The purpose of the meeting is to introduce everyone and to make sure any needs the contractor has are assigned and due dates established as well as who will get the information. See also Attachment F, BUILDING INFORMATION MODELING REQUIREMENTS for discussion concerning the BIM Implementation Plan demonstration at this meeting. The DB Contractor shall conduct the initial design conference.

3.1.5. Pre-Construction Conference

Before starting construction activities, the Contractor and Government will jointly conduct a pre-construction administrative conference to discuss any outstanding requirements and to review local installation requirements for start of construction. It is possible there will be multiple Pre-Construction Conferences based on the content of the design packages selected by the Contractor. The Government will provide minutes of this meeting to all participants.

3.2. STAGES OF DESIGN SUBMITTALS AND OVER THE SHOULDER PROGRESS REVIEWS

The stages of design submittals described below define Government expectations with respect to process and content. The Contractor shall determine how to best plan and execute the design and review process for this project, within the parameters listed below. As a minimum, the Government expects to see at least one interim design submittal, at least one final design submittal before construction of a design package may proceed and at least one Design Complete submittal that documents the accepted design. The Contractor may sub-divide the design into separate packages for each stage of design and may proceed with construction of a package after the Government accepts the final design for that package. See discussion on waivers to submission of one or more intermediate design packages where the parties partner during the design process. See also Attachment F, BUILDING INFORMATION MODELING REQUIREMENTS for discussion concerning BIM and the various stages of design submittals and over-the-shoulder progress reviews**.**

3.2.1. Site/Utilities

To facilitate fast-track design-construction activities the contractor may submit a final (100%) site and utility design as the first design submittal or it may elect to submit interim and final site and utility design submittals as explained below. Following review, resolution, and incorporation of all Government comments, and submittal of a satisfactory set of site/utility design documents, after completing all other pre-construction requirements in this contract and after the pre-construction meeting, the Government will allow the Contractor to proceed with site development activities, including demolition where applicable, within the parameters set forth in the accepted design submittal. For the first site and utility design submission, whether an interim or final, the submittal review, comment, and resolution times from this specification apply, except that the Contractor shall allow the Government a 14 calendar day review period, exclusive of mailing time. No on-site construction activities shall begin prior to written Government clearance to proceed.

3.2.2. Interim Design Submittals

The Contractor may submit either a single interim design for review, representing a complete package with all design disciplines, or split the interim design into smaller, individual design packages as it deems necessary for fast-track construction purposes. As required in Section 01 32 01.00 10 PROJECT SCHEDULE, the Contractor shall schedule its design and construction packaging plan to meet the contract completion period. This submission is the Government's primary opportunity to review the design for conformance to the solicitation and to the accepted contract proposal and to the Building Codes at a point where required revisions may be still made, while minimizing lost design effort to keep the design on track with the contract requirements. The requirements for the interim design review submittals and review conferences are described hereinafter. This is not necessarily a hold point for the design process; the Contractor may designate the interim design submittal(s) as a snapshot and proceed with design development at its own risk. See below for a waiver, where the parties establish an effective over-the-shoulder progress review procedure through the partnering process that would eliminate the need for or expedite a formal intermediate design review on one or more individual design packages.

3.2.3. Over-the-Shoulder Progress Reviews

To facilitate a streamlined design-build process, the Government and the Contractor may agree to one-on-one reviewer or small group reviews, electronically, on-line (if available within the Contractor's standard design practices) or at the Contractor's design offices or other agreed location, when practicable to the parties. The Government and Contractor will coordinate such reviews to minimize or eliminate disruptions to the design process. Any data required for these reviews shall normally be provided in electronic format, rather than in hard copy. If the Government and Contractor establish and implement an effective, mutually agreeable partnering procedure for regular (e.g., weekly) over-the shoulder review procedures that allow the Government reviewers the opportunity to keep fully informed of the progress, contents, design intent, design documentation, etc. of the design package, the Government will agree to waive or to expedite the formal intermediate design review period for that package. The Contractor shall still be required to submit the required intermediate design documentation, however the parties may agree to how that material will be provided, in lieu of a formal consolidated submission of the package. It should be noted that Government funding is extremely limited for non-local travel by design reviewers, so the maximum use of virtual teaming methods must be used. Some possible examples include electronic file sharing, interactive software with on-line or telephonic conferencing, televideo conferencing, etc. The Government must still perform its Code and Contract conformance reviews, so the Contractor is encouraged to partner with the reviewers to find ways to facilitate this process and to facilitate meeting or bettering the design-build schedule. The Contractor shall maintain a fully functional configuration management system as described herein to track design revisions, regardless of whether or not there is a need for a formal intermediate design review. The formal intermediate

review procedures shall form the contractual basis for the official schedule, in the event that the partnering process determines that the formal intermediate review process to be best suited for efficient project execution. However, the Government pledges to support and promote the partnering process to work with the Contractor to find ways to better the design schedule.

3.2.4. Final Design Submissions

This submittal is required for each design package prior to Government acceptance of that design package for construction. The requirements for the final design submittal review conferences and the Government's acceptance for start of construction are described herein after.

3.2.5. Design Complete Submittals

After the final design submission and review conference for a design package, the Contractor shall revise the design package to incorporate the comments generated and resolved in the final review conferences, perform and document a back-check review and submit the final, design complete documents, which shall represent released for construction documents. The requirements for the design complete submittals are described hereinafter.

3.2.6. Holiday Periods for Government Review or Actions

The Contractor shall not schedule meetings, Government reviews or responses during the last two weeks of December or other designated Government Holidays (including Friday after Thanksgiving) and shall exclude such dates and periods from any durations specified herein for Government actions.

3.2.7. Late Submittals and Reviews

If the Contractor cannot meet its scheduled submittal date for a design package, it must revise the proposed submittal date and notify the government in writing, at least one (1) week prior to the submittal, in order to accommodate the Government reviewers' other scheduled activities. If a design submittal is over one (1) day late in accordance with the latest revised design schedule, or if notification of a proposed design schedule change is less than seven (7) days from the anticipated design submission receipt date, the Government review period may be extended up to seven (7) days due to reviewers' schedule conflicts. If the Government is late in meeting its review commitment and the delay increases the Contractor's cost or delays completion of the project, the Suspension of Work and Defaults clauses provide the respective remedy or relief for the delay.

3.3. DESIGN CONFIGURATION MANAGEMENT

3.3.1. Procedures

The Contractor shall develop and maintain effective, acceptable design configuration management (DCM) procedures to control and track all revisions to the design documents after the Interim Design Submission through submission of the As-Built documents. During the design process, this will facilitate and help streamline the design and review schedule. After the final design is accepted, this process provides control of and documents revisions to the accepted design (See Special Contract Requirement: Deviating From the Accepted Design). The system shall include appropriate authorities and concurrences to authorize revisions, including documentation as to why the revision must be made. The DCM data shall be available to the Government reviewers at all times. The Contractor may use its own internal system with interactive Government concurrences, where necessary or may use the Government's "DrChecks Design Review and Checking System" (see below and Attachment C).

3.3.2. Tracking Design Review Comments

Although the Contractor may use its own internal system for overall design configuration management, the Government and the Contractor shall use the DrChecks Design Review and Checking System to initiate, respond to, resolve and track Government design compliance review comments. This system may be useful for other data which needs to be interactive or otherwise available for shared use and retrieval. See Attachment C for details on how to establish an account and set-up the DrChecks system for use on the project.

3.3.3. Design and Code Checklists

The Contractor shall develop and complete various discipline-specific checklists to be used during the design and quality control of each submittal. These completed checklists shall be submitted with each design submittal, as applicable, as part of the project documentation. See Section 01 45 04.00 10 Contractor Quality Control, Attachment D for a Sample Fire Protection and Life Safety Code review checklist and Attachment E for LEED SUBMITTALS.

3.4. INTERIM DESIGN REVIEWS AND CONFERENCES

3.4.1. General

At least one interim design submittal, review and review conference is required for each design package (except that, per paragraph 3.2.1, the Contractor may skip the interim design submission and proceed directly to final design on the sitework and utilities package). The DB Contractor may include additional interim design conferences or over-the-shoulder reviews, as needed, to assure continued government concurrence with the design work. The interim submittal review periods and conferences shall be included in the project schedule and shall indicate what part of the design work is at what percentage of completion. The required interim design conferences shall be held when interim design requirements are reached as described below. See also Paragraph: **Over-the-Shoulder Progress Reviews** for a waiver to the formal interim design review.

3.4.2. Procedures

After receipt of an Interim Design submission, the Contractor shall allow the Government fourteen (14) calendar days after receipt of the submission to review and comment on the interim design submittal. For smaller design packages, especially those that involve only one or a few separate design disciplines, the parties may agree on a shorter review period or alternative review methods (e.g., over-the –shoulder or electronic file sharing), through the partnering process. For each interim design review submittal, the COR will furnish, to the Contractor, a single consolidated, validated listing of all comments from the various design sections and from other concerned agencies involved in the review process using the DrChecks Design Review and Checking System. The review will be for conformance with the technical requirements of the solicitation and the Contractor's RFP proposal. If the Contractor disagrees technically with any comment or comments and does not intend to comply with the comment, he/she must clearly outline, with ample justification, the reasons for noncompliance within five (5) days after receipt of these comments in order that the comment can be resolved. The Contractor shall furnish disposition of all comments, in writing, through DrChecks. The Contractor is cautioned that if it believes the action required by any comment exceeds the requirements of this contract, that it should take no action and notify the COR in writing immediately. The Interim Review conference will be held for each design submittal at the installation. The Contractor shall bring the personnel that developed the design submittal to the review conference. The conference will take place the week after the receipt of the comments by the Contractor. For smaller fast-track packages that involve only a few reviewers, the parties may agree to alternative conferencing methods, such as teleconferencing, or televideo, where available, as determined through Partnering.

3.4.3. Conference Documentation

3.4.3.1. In order to facilitate and accelerate the Government code and contract conformance reviews, the Contractor shall identify, track resolution of and maintain all comments and action items generated during the design process and make this available to the designers and reviewers prior to the Interim and subsequent design reviews.

3.4.3.2. The DB Contractor shall prepare meeting minutes and shall enter final resolution of all comments into DrChecks. Copies of comments, annotated with comment action agreed on, will be made available to all parties before the conference adjourns. Unresolved problems will be resolved by immediate follow-on action at the end of conferences. Valid comments shall be incorporated. The Government reserves the right to reject design document submittals if comments are significant. Participants shall determine if any comments are critical enough to require further design development prior to government concurrence. Participants shall also determine how to proceed in order to obtain government concurrence with the design work presented.

3.5. INTERIM DESIGN REQUIREMENTS

Interim design deliverables shall include drawings, specifications, and design analysis for the part of design that the DB Contractor considers ready for review.

3.5.1. Drawings

Drawings shall include comments from any previous design conferences incorporated into the documents to provide an interim design for the “part” submitted.

3.5.2. Design Analyses

3.5.2.1. The designers of record shall prepare and present design analyses with calculations necessary to substantiate and support all design documents submitted. Address design substantiation required by the applicable codes and references and pay particular attention to the following listed items:

3.5.2.2. For parts including sitework, include site specific civil calculations.

3.5.2.3. For parts including structural work, include structural calculations.

(a) Identify all loads to be used for design.

(b) Describe the method of providing lateral stability for the structural system to meet seismic and wind load requirements. Include sufficient calculations to verify the adequacy of the method.

(c) Provide calculations for all principal roof, floor, and foundation members and bracing and secondary members.

(d) Provide complete seismic analyses for all building structural, mechanical, electrical, architectural, and building features as dictated by the seismic zone for which the facility is being constructed.

(e) Computer generated calculations must identify the program name, source, and version. Provide input data, including loads, loading diagrams, node diagrams, and adequate documentation to illustrate the design. The schematic models used for input must show, as a minimum, nodes/joints, element/members, materials/properties, and all loadings, induced settlements/deflections, etc., and a list of load combinations. Include an output listing for maximum/minimum stresses/forces and deflections for each element and the reactions for each loading case and combination.

(f) See also the Security (Anti-Terrorism) requirements below for members subject to Anti-Terrorist Force Protection (ATFP) and Progressive Collapse requirements.

(g) Fully coordinate and integrate the overall structural design between two different or interfacing construction types, such as modular and stick-built or multistory, stacked modular construction. Provide substantiation of structural, consolidation/settlement analysis, etc., as applicable, through the interfaces.

3.5.2.4. For Security (Anti-Terrorism): Provide a design narrative and calculations where applicable, demonstrating compliance with each of the 22 standards in UFC 4-010-01, which includes Design of Buildings to Resist Progressive Collapse (use the most recent version of UFC 4-023-03, regardless of references to any specific version in UFC 4-010-01). Where sufficient standoff distance is not being provided, show calculations for blast resistance of the structural system and building envelope. Show complete calculations for members subjected to ATFP loads, e.g., support members of glazed items (jambs, headers, sills) connections of windows to support members and connections of support members to the rest of the structure. For 3 story and higher buildings, provide calculations to demonstrate compliance with progressive collapse requirements.

3.5.2.5. For parts including architectural work, include building floor area analysis.

3.5.2.6. For parts including mechanical work, include HVAC analysis and calculations. Include complete design calculations for mechanical systems. Include computations for sizing equipment, compressed air systems, air duct design, and U-factors for ceilings, roofs and exterior walls and floors. Contractor shall employ commercially available energy analysis techniques to determine the energy performance of all passive systems and features. Use of hourly energy load computer simulation is required (see paragraph 3.5.5.2 for list of acceptable software). Based on the results of calculations, provide a complete list of the materials and equipment proposed with the manufacturer's published cataloged product installation specifications and roughing-in data.

3.5.2.7. For parts including life safety, include building code analysis and sprinkler and other suppression systems. Notwithstanding the requirements of the Codes, address the following:

(a) A registered fire protection engineer (FPE) must perform all fire protection analyses. Provide the fire protection engineer's qualifications. See Section 01 10 00, paragraph 5 for qualifications.

(b) Provide all references used in the design including Government design documents and industry standards used to generate the fire protection analysis.

(c) Provide classification of each building in accordance with fire zone, building floor areas and height and number of stories.

(d) Provide discussion and description of required fire protection requirements including extinguishing equipment, detection equipment, alarm equipment and water supply. Alarm and detection equipment shall interface to requirements of Electronic Systems.

(e) Provide hydraulic calculations based on water flow test for each sprinkler system to insure that flow and pressure requirements can be met with current water supply. Include copies of Contractor's water flow testing done to certify the available water source.

3.5.2.8. For parts including plumbing systems:

(a) List all references used in the design.

(b) Provide justification and brief description of the types of plumbing fixtures, piping materials and equipment proposed for use.

(c) Detail calculations for systems such as sizing of domestic hot water heater and piping; natural gas piping; LP gas piping and tanks, fuel oil piping and tanks, etc., as applicable.

(d) When the geotechnical report indicates expansive soils are present, indicate in the first piping design submittal how piping systems will be protected against damage or backfall/backflow due to soil heave (from penetration of slab to the 5 foot building line).

3.5.2.9. For elevator systems:

(a) List all criteria codes, documents and design conditions used.

(b) List any required permits and registrations for construction of items of special mechanical systems and equipment.

3.5.2.10. For parts including electrical work, include lighting calculations to determine maintained foot-candle levels, electrical load analysis and calculations, electrical short circuit and protective device coordination analysis and calculations and arc fault calculations.

3.5.2.11. For parts including telecommunications voice/data (including SIPRNET, where applicable), include analysis for determining the number and placement of outlets

3.5.2.12. For Cathodic Protection Systems, provide the following stamped report by the licensed corrosion engineer or NACE specialist with the first design submission. Clearly describe structures, systems or components in soil or water to be protected. Describe methods proposed for protection of each.

3.5.3. Geotechnical Investigations and Reports:

3.5.3.1. The contractor's licensed geotechnical engineer shall prepare a final geotechnical evaluation report, to be submitted along with the first foundation design submittal. Make this information available as early as possible during the over-the-shoulder progress review process. Summarize the subsurface conditions and provide recommendations for the design of appropriate utilities, foundations, floor slabs, retaining walls, embankments, and pavements. Include compaction requirements for fill and backfill under buildings, sidewalks, other structures and open areas. Recommend foundation systems to be used, allowable bearing pressures for footings, lateral load resistance capacities for foundation systems, elevations for footings, grade beams, slabs, etc. Provide an assessment of post-construction settlement potential including total and differential. Provide recommendations regarding lateral earth pressures (active, at-rest, passive) to be used in the design of retaining walls. Include the recommended spectral accelerations and Site Class for seismic design along with an evaluation of any seismic hazards and recommendations for mitigation, if required. Include calculations to support the recommendations for bearing capacity, settlement, and pavement sections. Include supporting documentation for all recommended design parameters such as Site Class, shear strength, earth pressure coefficients, friction factors, subgrade

modulus, California Bearing Ratio (CBR), etc. Provide earthwork recommendations, expected frost penetration, expected groundwater levels, recommendations for dewatering and groundwater control and the possible presence of any surface or subsurface features that may affect the construction of the project such as sinkholes, boulders, shallow rock, old fill, old structures, soft areas, or unusual soil conditions. Include pH tests, salinity tests, resistivity measurements, etc., required to design corrosion control and grounding systems. Include the raw field data. Arrange a meeting with the Government subsequent to completion and evaluation of the site specific geotechnical exploration to outline any differences encountered that are inconsistent with the Government provided preliminary soils information. Clearly outline differences which require changes in the foundation type, or pavement and earthwork requirements from that possible and contemplated using the Government furnished preliminary soils investigation, which result in a change to the design or construction. Any equitable adjustment is subject to the provisions of the contract's Differing Site Conditions Clause.

3.5.3.2. Vehicle Pavements: The Contractor's geotechnical report shall contain flexible and rigid pavement designs, as applicable for the project, including design CBR and modulus of subgrade reaction and the required compaction effort for subgrades and pavement layers. Provide Information on the types of base course materials available in the area and design strengths.

3.5.3.3. The DB Contractor and the professional geotechnical engineer consultant shall certify in writing that the design of the project has been developed consistent with the Contractor's final geotechnical report. The certification shall be stamped by the consulting professional geotechnical engineer and shall be submitted with the first design submission. If revisions are made to the initial design submission, a new certification shall be provided with the final design submission.

3.5.4. LEED Documentation:

Assign a LEED Accredited Professional, responsible to track LEED planning, performance and documentation for each LEED credit through construction closeout. Incorporate LEED credits in the plans, specifications and design analyses. Develop LEED supporting documentation as a separable portion of the Design Analysis and provide with each required design submittal. Include the LEED Project checklist for each non-exempt facility (one checklist may be provided for multiple facilities in accordance with the LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects and the LEED SUBMITTALS (Attachment E, herein) with each submittal. Final design submittal for each portion of the work must include all required design documentation relating to that portion of work (example - all site credit design documents with final site design). Submittal requirements are as indicated in Attachment E, LEED SUBMITTALS. Submit all documentation indicated on Attachment E as due at final design at final design submittal (for fast-track projects with multiple final design submittals, this shall be at the last scheduled final design submittal). All project documentation related to LEED shall conform to USGBC requirements for both content and format, including audit requirements and be separate from other design analyses. Maintain and update the LEED documentation throughout project progress to construction closeout and shall compile product data, receipts, calculations and other data necessary to substantiate and support all credits claimed. The Government may audit any or all individual credits. Audit documentation is not required to be submitted unless requested. These requirements apply to all projects. If the project requires the Contractor to obtain USGBC certification, the Contractor shall also be responsible for obtaining USGBC certification and shall provide written evidence of certification with the construction closeout LEED documentation submittal. Install the USGBC building plaque at the location indicated by the Government upon receipt. If Contractor obtains USGBC interim design review, submit the USGBC review to the Government within 30 days of receipt for information only.

3.5.4.1. LEED Documentation for Technology Solution Set. If the Solicitation provides a Prescriptive Technology Solution Set, use of the Technology Solution set has no effect on LEED documentation requirements. Provide all required LEED documentation, including energy analysis, in accordance with LEED requirements when using the Technology Solution Set.~~If a building design complies fully with its technology solution set, when such is included in the Solicitation, use the data provided with the technology solution set when preparing LEED credit EA1 documentation. If the project requires USGBC certification and a building design complies fully with its technology solution set included in the Solicitation, the Government will provide a partially completed LEED Letter Template, without project energy cost, for the building. The designer must add the project energy cost data.~~

3.5.5. Energy Conservation:

3.5.5.1. Refer to Section 01 10 00, Paragraph 5. Interim and Final Design submittals shall demonstrate that each building including the building envelope, HVAC systems, service water heating, power, and lighting systems meet

the Mandatory Provisions and the Prescriptive Path requirements of ASHRAE 90.1. Use Compliance Documentation forms available from ASHRAE and included in the ASHRAE 90.1 User's Manual for this purpose. The Architectural Section of the Design Analysis shall include completed forms titled "Building Envelope Compliance Documentation Parts I and II". The Heating Ventilating and Air Conditioning (HVAC) Section of the Design Analysis shall include a completed form titled "HVAC Simplified Approach Option - Part I" if this approach is allowed by the Standard. Otherwise, the HVAC Section of the Design Analysis shall include completed forms titled "HVAC Mandatory Provisions - Part II" and "HVAC Prescriptive Requirements - Part III". The Plumbing Section of the Design Analysis shall include a completed form titled "Service Water Heating Compliance Documentation". The Electrical Section of the Design Analysis shall include an explanatory statement on how the requirements of ASHRAE 90.1-2004 Chapter 8 Power were met. The Electrical Section of the Design Analysis shall also include a completed form titled "Lighting Compliance Documentation".

3.5.5.2. Interim and Final Design submittals which address energy consuming systems, (heating, cooling, service hot water, lighting, power, etc.) must also include calculations in a separate Energy Conservation Section of the Design Analysis which demonstrate and document (a) the baseline energy consumption for the facility or facilities under contract, that would meet the requirements of ANSI/ASHRAE/IESNA Standard 90.1 and (b) the energy consumption of the facility or facilities under contract utilizing the materials and methods required by this construction contract. Use the USGBC Energy and Atmosphere (EA) Credit 1 compliance template / form or an equivalently detailed form for documenting compliance with the energy reduction requirements. This template / form is titled PERFORMANCE RATING METHOD and is available when the project is registered for LEED. The calculation methodology used for this documentation and analysis shall follow the guidelines set forth in Appendix G of ASHRAE 90.1, with two exceptions: a) receptacle and process loads may be omitted from the calculation; and b) the definition of the terms in the formula for Percentage Improvement found in paragraph G1.2 are modified as follows: Baseline Building Performance shall mean the annual energy consumption calculated for a building design intended for use as a baseline for rating above standard design meeting the minimum requirements of the energy standard, and Proposed Building Performance shall mean annual energy consumption calculated for the proposed building design intended for construction. This calculation shall address all energy consuming systems in a single integrated methodology. Include laboratory fume hoods and kitchen ventilation loads in the energy calculation. They are not considered process loads. Individual calculations for heating, cooling, power, lighting, power, etc. systems will not be acceptable. The following building simulation software is acceptable for use in calculating building energy consumption: Hourly Analysis Program (HAP) by Carrier Corp., TRACE 700 by Trane Corp., DOE-2 by US Department of Energy, EnergyPlus by DOD/DOE.

3.5.6. Specifications

Specifications may be any one of the major, well known master guide specification sources (use only one source) such as MASTERSPEC from the American Institute of Architects, SPECTEXT from Construction Specification Institute or Unified Facility Guide Specifications (UFGS using MASTERFORMAT 2004 numbering system), etc. (including specifications from these sources). Manufacturers' product specifications, utilizing CSI's Manu-Spec, three part format may be used in conjunction with the selected specifications. The designers of record shall edit and expand the appropriate Specifications to insure that all project design requirements, current code requirements, and regulatory requirements are met. Specifications shall clearly identify, where appropriate, specific products chosen to meet the contract requirements (i.e., manufacturers' brand names and model numbers or similar product information).

3.5.7. Building Rendering

DB Contractor shall present and provide a draft color computer, artist, or hand drawn rendering with the conceptual design submittal of the building exterior. Perspective renderings shall include a slightly overhead view of the entire building to encompass elevations and the roof configuration of the building. After Government review and acceptance, provide a final rendering, including the following:

Three (3) 18" x 24" color prints, framed and matted behind glass with project title underneath the print.

One (1) Image file (high resolution) in JPG format on CD for those in the submittal distribution list.

3.5.8. Interim Building Design Contents

The following list represents what the Government considers should be included in the overall completed design for a facility or project. It is not intended to limit the contractor from providing different or additional information as needed to support the design presented, including the require design analyses discussed above. As the Contractor develops individual design packages and submits them for Interim review, include as much of the applicable information for an individual design package as is developed at the Interim design level for review purposes. These pieces shall be developed as the design progresses toward the design complete stage.

3.5.8.1. Lawn and Landscaping Irrigation System

3.5.8.2. Landscape, Planting and Turfing

3.5.8.3. Architectural

(a) Design Narrative

(b) Architectural Floor Plans, Typical Wall and Roof Sections, Elevations

(c) Finish schedule

(d) All required equipment

(e) Special graphics requirements

(f) Door and Window Schedules

(g) Hardware sets using BHMA designations

(h) Composite floor plan showing all pre-wired workstations

(i) Structural Interior Design (SID) package: See ATTACHMENT A for specific requirements

(j) Furniture, Fixtures & Equipment (FF&E) design package: See ATTACHMENT B for specific requirements

3.5.8.4. Structural Systems. Include:

(a) Drawings showing principal members for roof and floor framing plans as applicable

(b) Foundation plan showing main foundation elements where applicable

(c) Typical sections for roof, floor, and foundation conditions

3.5.8.5. Plumbing Systems

(a) Show locations and general arrangement of plumbing fixtures and major equipment

(b) Plan and isometric riser diagrams of all areas including hot water, cold water, waste and vent piping. Include natural gas (and meter as required), (natural gas and meter as required), (LP gas), (fuel oil) and other specialty systems as applicable.

(c) Include equipment and fixture connection schedules with descriptions, capacities, locations, connection sizes and other information as required

3.5.8.6. HVAC Systems

(a) Mechanical Floor Plans: The floor plans shall show all principle architectural features of the building which will affect the mechanical design. The floor plans shall also show the following:

(1) Room designations.

(2) Mechanical legend and applicable notes.

(3) Location and size of all ductwork and piping.

(4) Location and capacity of all terminal units (i.e., registers, diffusers, grilles, hydronic baseboards).

(5) Pre-Fabricated Paint Spray Booth (where applicable to project scope)

(6) Paint Preparation Area (where applicable to project scope)

(7) Exhaust fans and specialized exhaust systems.

(8) Thermostat location.

(9) Location of heating/cooling plant (i.e., boiler, chiller, cooling tower, etc).

(10) Location of all air handling equipment.

(11) Air balancing information.

(12) Flue size and location.

(13) Piping diagram for forced hot water system (if used).

(b) Equipment Schedule: Provide complete equipment schedules. Include:

(1) Capacity

(2) Electrical characteristics

(3) Efficiency (if applicable)

(4) Manufacturer's name

(5) Optional features to be provided

(6) Physical size

(7) Minimum maintenance clearances

(a) Details: Provide construction details, sections, elevations, etc., only where required for clarification of methods and materials of design.

(b) HVAC Controls: Submit complete HVAC controls equipment schedules, sequences of operation, wiring and logic diagrams, Input/Output Tables, equipment schedules, and all associated information. See the Statement of Work for additional specific requirements.

3.5.8.7. Fire Protection and Life Safety.

(a) Provide plan for each floor of each building that presents a compendium of the total fire protection features being incorporated into the design. Include the following types of information:

(1) The location and rating of any fire-resistive construction such as occupancy separations, area separations, exterior walls, shaft enclosures, corridors, stair enclosures, exit passageways, etc.

(2) The location and coverage of any fire detection systems

(3) The location and coverage of any fire suppression systems (sprinkler risers, standpipes, etc.)

(4) The location of any other major fire protection equipment

(5) Indicate any hazardous areas and their classification

(6) Schedule describing the internal systems with the following information: fire hazard and occupancy classifications, building construction type, GPM/square foot sprinkler density, area of operation and other as required

(b) Working plans and all other materials submitted shall meet NFPA 13 requirements, with respect to required minimum level of detail.

3.5.8.8. Elevators. Provide:

(a) Description of the proposed control system

(b) Description, approximate capacity and location of any special mechanical equipment for elevators.

3.5.8.9. Electrical Systems.

(a) Electrical Floor Plan(s): Show all principle architectural features of the building which will affect the electrical design. Show the following:

(1) Room designations.

(2) Electrical legend and applicable notes.

(3) Lighting fixtures, properly identified.

(4) Switches for control of lighting.

(5) Receptacles.

(6) Location and designation of panelboards. Clearly indicate type of mounting required (flush or surface) and reflect accordingly in specifications.

(7) Service entrance (conduit and main disconnect).

(8) Location, designation and rating of motors and/or equipment which requires electrical service. Show method of termination and/or connection to motors and/or equipment. Show necessary junction boxes, disconnects, controllers (approximate only), conduit stubs, and receptacles required to serve the motor and/or equipment.

(b) Building Riser Diagram(s) (from pad-mounted transformer to unit load center panelboard): Indicate the types and sizes of electrical equipment and wiring. Include grounding and metering requirements.

(c) Load Center Panelboard Schedule(s): Indicate the following information:

(1) Panelboard Characteristics (Panel Designation, Voltage, Phase, Wires, Main Breaker Rating and Mounting.

(2) Branch Circuit Designations.

(3) Load Designations.

(4) Circuit Breaker Characteristics. (Number of Poles, Trip Rating, AIC Rating)

(5) Branch Circuit Connected Loads (AMPS).

(6) Special Features

(d) Lighting Fixture Schedule(s): Indicate the following information:

(1) Fixture Designation.

(2) General Fixture Description.

(3) Number and Type of Lamp(s).

(4) Type of Mounting.

(5) Special Features.

(e) Details: Provide construction details, sections, elevations, etc. only where required for clarification of methods and materials of design.

3.5.8.10. Electronic Systems including the following responsibilities:

(a) Fire Detection and Alarm System. Design of the fire alarm and detection system shall include layout drawings for all devices and a riser diagram showing the control panel, annunciator panel, all zones, radio transmitter and interfaces to other systems (HVAC, sprinkler, etc.)

(b) Fire Suppression System Control. Specify all components of the Fire Suppression (FS) System in the FS section of the specifications. Clearly describe how the system will operate and interact with other systems such as the fire alarm system. Include a riser diagram on the drawings showing principal components and interconnections with other systems. Include FS system components on drawing legend. Designate all components shown on floor plans “FS system components” (as opposed to “Fire Alarm components”). Show location of FS control panels, HVAC control devices, sensors, and 120V power panel connections on floor plans. Indicate zoning of areas by numbers (1, 2, 3) and detectors sub-zoned for cross zoning by letter designations (A and B). Differentiate between ceiling mounted and under floor detectors with distinct symbols and indicate sub-zone of each.

(c) Public Address System

(d) Special Grounding Systems. Completely reflect all design requirements in the specifications and drawings. Specifications shall require field tests (in the construction phase), witnessed by the Government, to determine the effectiveness of the grounding system. Include drawings showing existing construction, if any.

(e) Cathodic Protection.

(f) Intrusion Detection, Card Access System

(g) Central Control and Monitoring System

(h) Mass Notification System

(i) Electrical Power Distribution Systems

3.5.8.11. Information Systems including the following responsibilities:

(a) Telecommunications Cabling

(b) Supporting Infrastructure

(c) Outside Plant (OSP) Cabling

(d) Include a layout of the voice/data outlets (including voice only wall & pay phones) on telecommunication floor plan drawing, location of SIPRNET data outlets (where applicable), and a legend and symbol definition to indicate height above finished floor. Show size of conduit and cable type and size on Riser Diagram. Do not show conduit runs between backboard and outlets on the floor plans. Show underground distribution conduit and cable with sizing from point of presence to entrance facility of building.

3.6. FINAL DESIGN REVIEWS AND CONFERENCES

A final design review and review conference will be held upon completion of final design at the project installation, or – where equipment is available - by video teleconference or a combination thereof, for any design package to receive Government acceptance to allow release of the design package for construction. For smaller separate design packages, the parties may agree on alternative reviews and conferences (e.g., conference calls and electronic file sharing, etc.) through the Partnering process. The Contractor shall include the final design conference in the project schedule and shall indicate what part of the design work is at 100% completion. The final design conference will be held after the Government has had seven (7) calendar days after receipt of the submission to review the final design package and supporting data. For smaller packages, especially those involving only one or a few design disciplines the parties may agree on a shorter period.

3.7. FINAL DESIGN REQUIREMENTS

Final design deliverables for a design package shall consist of 100% complete drawings, specifications, submittal register and design analyses for Government review and acceptance. The 100% design submission shall consist of drawings, specifications, updated design analyses and any permits required by the contract for each package submitted. In order to expedite the final design review, prior to the conference, the Contractor shall ensure that the design configuration management data and all review comment resolutions are up-to-date. Include the 100% SID and 100% FF&E binders for government approval. The Contractor shall have performed independent technical reviews (ITR's) and back-checks of previous comment resolutions, as required by Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL, including providing documentation thereof.

3.7.1. Drawings

3.7.1.1. Submit drawings complete with all contract requirements incorporated into the documents to provide a 100% design for each package submitted.

3.7.1.2. Prepare all drawings with the Computer-Aided Design and Drafting (CADD)/Computer-Aided Design (CAD) system, organized and easily referenced electronically, presenting complete construction information.

3.7.1.3. Drawings shall be complete. The Contractor is encouraged to utilize graphics, views, notes, and details which make the drawings easier to review or to construct but is also encouraged to keep such materials to those that are necessary.

3.7.1.4. Provide detail drawings that illustrate conformance with the contract. Drawings shall include room finish schedules, corresponding color/finish/special items schedules, and exterior finish schedules that agree with the submitted SID binders.

3.7.1.5. The design documents shall be in compliance with the latest version of the A/E/C CADD Standard, available at https://cadbim.usace.army.mil/CAD. The DB Contractor shall use the approved vertical Corps of

Engineers title blocks and borders on all drawings with the appropriate firm name included within the title block area.

3.7.1.6. CAD System and Building Information Modeling (BIM) (NOTE: If this is a Single Award or Multiple Award, Indefinite Delivery/Indefinite Quantity Contract, this information will be provided for each task order.)

All CAD files shall be fully compatible with MicroStation V8 or higher. Save all design CAD files as MicroStation V8 or higher files. All submitted BIM Models and associated Facility Data shall be fully compatible with Bentley BIM file format and the USACE Bentley BIM v8 Workspace.

(a) CAD Data Final File Format: During the design development the contractor shall capture geo-referenced coordinates of all changes made to the existing site (facility footprint, utility line installations and alterations, roads, parking areas, etc) as a result of this contract. There is no mandatory methodology for how the geo-referenced coordinates will be captured, however, Engineering and Construction Bulletin No. 2006-15, Subject: Standardizing Computer Aided Design (CAD) and Geographic Information Systems (GIS) Deliverables for all Military Design and Construction Projects identifies the format for final as-built drawings and data sets to be delivered to the government. Close-out requirements at the as-built stage; require final geo-referenced GIS Database of the new facility along with all exterior modifications. The Government will incorporate this data set into the Installation's GIS Masterplan or Enterprise GIS System. See also, Section 01 78 02.00 10 Closeout Submittals.

(b) Electronic Drawing Files: In addition to the native CAD design files, provide separate electronic drawing files (in editable CAD format and Adobe Acrobat PDF version 7.0 or higher) for each project drawing.

(c) Each file (both CAD and PDF) shall represent one complete drawing from the drawing set, including the date, submittal phase, and border. Each drawing file shall be completely independent of any data in any other file, including fonts and shapes not included with the basic CAD software program utilized. Drawing files with external references or special fonts are not acceptable. All displayed graphic elements on all levels of the drawing files shall be part of the project drawing image. The drawing files shall not contain any graphic element that is not part of the drawing image.

(d) See Attachment F for additional BIM requirements. BIM Model and associated Facility Data files shall be delivered in their native format. At a minimum, BIM files shall address major architecture design elements, major structural components, mechanical systems and electrical/communication distribution and elements as defined in Attachment F. See Attachment F for additional BIM requirements.

(e) Drawing Index: Provide an index of drawings sheet in CAD as part of the drawing set, and an electronic list in Microsoft Excel of all drawings on the CD. Include the electronic file name, the sheet reference number, the sheet number, and the sheet title, containing the data for each drawing.

(f) Hard Copies: Plot submitted hard copy drawings directly from the "electronic drawing files" and copy for quantities and sizes indicated in the distribution list at the end of this specification section. The Designers of Record shall stamp, sign and date original hard copy sheets as Released For Construction, and provide copies for distribution from this set.

3.7.2. Design Analyses

3.7.2.1. The designers of record shall update, finalize and present design analyses with calculations necessary to substantiate and support all design documents submitted.

3.7.2.2. The responsible DOR shall stamp, sign and date the design analysis. Identify the software used where, applicable (name, version, vendor). Generally, provide design analyses, individually, in an original (file copy) and one copy for the assigned government reviewer.

3.7.2.3. All disciplines review the LEED design analysis in conjunction with their discipline-specific design analysis; include a copy of the separable LEED design analysis in all design analysis submittals.

3.7.2.4. Do not combine multi-disciplined volumes of design-analysis, unless multiple copies are provided to facilitate multiple reviewers (one copy per each separate design analysis included in a volume).

3.7.3. Specifications

Specifications shall be 100% complete and in final form.

3.7.4. Submittal Register

The DB Contractor shall prepare and update the Submittal Register and submit it with the 100% design specifications (see Specification Section 01 33 00, SUBMITTAL PROCEDURES) with each design package. Include the required submittals for each specification section in a design package in the submittal register.

3.7.5. Preparation of DD Form 1354 (Transfer of Real Property)

This form itemizes the types, quantities and costs of various equipment and systems that comprise the project, for the purpose of transferring the new construction project from the Corps Construction Division to the Installation's inventory of real property. The Government will furnish the DB Contractor's design manager a DD Form 1354 checklist to use to produce a draft Form 1354. The completed checklist and prepared draft Form DD 1354 shall be submitted with the 100% design in the Design Analysis. The Corps will use these documents to complete the final DD 1354 upon completion of construction.

3.7.6. Acceptance and Release for Construction

3.7.6.1. At the conclusion of the Final Design Review (after resolutions to the comments have been agreed upon between DOR and Government reviewers), the Contracting Officer or the ACO will accept the Final Design Submission for the design package in writing and allow construction to start for that design package. The Government may withhold acceptance until all major corrections have been made or if the final design submission requires so many corrections, even though minor, that it isn't considered acceptably complete.

3.7.6.2. Government review and acceptance of design submittals is for contract conformance only and shall not relieve the Contractor from responsibility to fully adhere to the requirements of the contract, including the Contractor’s accepted contract proposal, or limit the Contractor’s responsibility of design as prescribed under Special Contract Requirement: “Responsibility of the Contractor for Design” or limit the Government’s rights under the terms of the contract. The Government reserves the right to rescind inadvertent acceptance of design submittals containing contract deviations not separately and expressly identified in the submittal for Government consideration and approval.

3.8. DESIGN COMPLETE CONSTRUCTION DOCUMENT REQUIREMENTS

After the Final Design Submission and Review Conference and after Government acceptance of the Final Design submission, the Contractor shall revise the design documents for the design package to incorporate the comments generated and resolved in the final review conference, perform and document a back-check review and submit the final, design complete documents. Label the final design complete documents “FOR CONSTRUCTION” or use similar language. In addition to the final drawings and specifications, the following deliverables are required for distribution and field use. The deliverable includes all documentation and supporting design analysis in final form, as well as the final review comments, disposition and the back-check. As part of the quality assurance process, the Government may perform a back-check of the released for construction documentation. The Contractor shall promptly correct any errors or omissions found during the Government back-check. The Government may withhold retainage from progress payments for work or materials associated with a final design package until this submittal has been received and the Government determines that it is complete.

3.9. SUBMITTAL DISTRIBUTION, MEDIA AND QUANTITIES

3.9.1. Submittal Distribution and Quantities

General: The documents which the Contractor shall submit to the Government for each submittal are listed and generally described in preceding paragraphs in this Section. Provide copies of each design submittal and design substantiation as follows (NOTE: If this is a Single Award or Multiple Award, Indefinite Delivery/Indefinite Quantity Contract, this information will be provided for each task order):

| Activity and Address | Drawing Size (Full Size) **A1** Full Sets/ *Partial Sets | Design Analyses & Specs Full Sets/ *Partial Sets | Drawing Size (Half Size) **A1** Full Sets/ *Partial Sets | Non-BIM Data CD-ROM or DVD as Necessary (PDF& **.dgn**) | Furniture Submittal (FFE) | Structural Interior Design Submittal | BIM Data DVD (Per Attach F) |
|---|---|---|---|---|---|---|---|
| Commander, U.S.Army Engineer District **Louisville District** | 0/0 | 0/0 | 0/0 | 0 | 0 | 0 | 0 |
| Commander, U.S.Army Engineer District, Center of Standardization **Fort Worth** | 0/0 | 0/0 | 0/0 | 0 | 0 | 0 | 0 |
| Installation | 0/0 | 0/0 | 0/0 | 0 | 0 | 0 | 0 |
| U.S.Army Corps of Engineers Construction Area Office | 0/0 | 0/0 | 0/0 | 0 | 0 | 0 | 0 |
| Information Systems Engineering Command (ISEC) | 0/0 | 0/0 | 0/0 | 0 | N/A | N/A | 0 |
| Other Offices | 0/0 | 0/0 | 0/0 | 0 | 0 | 0 | 0 |

***NOTE: For partial sets of drawings, specifications and design analyses, see paragraph 3.9.3.3, below.**

****NOTE: When specified below in 3.9.2, furnish Installation copies of Drawings as paper copies, in lieu of the option to provide secure web-based submittals.**

3.9.2. Web based Design Submittals

Web based design submittals will be acceptable as an alternative to the paper copies listed in the Table above, provided a single hard-copy PDF based record set is provided to the Contracting Officer for record purposes. Where the contract requires the Contractor to submit documents to permitting authorities, still provide those authorities paper copies (or in an alternate format where required by the authority). Web based design submittal information shall be provided with adequate security and availability to allow unlimited access those specifically authorized to Government reviewers while preventing unauthorized access or modification. File sizes must be of manageable size for reviewers to quickly download or open on their computers. As a minimum, drawings shall be full scale on American National Standards Institute (ANSI) D sheets (34" x 22"). In addition to the optional website, provide the BIM data submission on DVD to each activity and address noted above in paragraph 3.9.1 for each BIM submission required in Attachment F.

3.9.3. Mailing of Design Submittals

3.9.3.1. Mail all design submittals to the Government during design and construction, using an overnight mailing service. The Government will furnish the Contractor addresses where each copy shall be mailed to after award of the contract (or individual task order if this is an indefinite delivery/indefinite quantity, task order contract). Mail the submittals to four (4) different addresses. Assemble drawing sheets, specs, design analyses, etc. into individual sets; do not combine duplicate pages from individual sets so that the government has to assemble a set.

3.9.3.2. Each design submittal shall have a transmittal letter accompanying it indicating the date, design percentage, type of submittal, list of items submitted, transmittal number and point of contact with telephone number.

3.9.3.3. Provide partial sets of drawings, specifications, design analyses, etc., as designated in the Table in paragraph 3.9.1, to those reviewers who only need to review their applicable portions of the design, such as the various utilities. The details of which office receives what portion of the design documentation will be worked out after award.

3.10. AS-BUILT DOCUMENTS

Provide as-built drawings and specifications in accordance with Section 01 78 02.00 10, CLOSEOUT SUBMITTALS. Update LEED design phase documentation during construction as needed to reflect construction changes and advancing project completion status (example - Commissioning Plan updates during construction phase) and include updated LEED documentation in construction closeout submittal.

**ATTACHMENT A**
**STRUCTURAL INTERIOR DESIGN (SID) REQUIREMENTS**

## 1.0 GENERAL INFORMATION

Structural Interior Design includes all building related elements and components generally part of the building itself, such as wall finishes, ceilings finishes, floor coverings, marker/bulletin boards, blinds, signage and built in casework. Develop the SID in conjunction with the furniture footprint.

## 2.0 STRUCURAL INTERIOR DESIGN (SID) REQUIREMENTS FOR THE INTERIM AND FINAL DESIGN SUBMITTALS

### 2.1. FORMAT AND SCHEDULE

Prepare and submit for approval an interior and exterior building finishes scheme for an interim design submittal. The DOR shall meet with and discuss the finish schemes with the appropriate Government officials prior to preparation of the schemes to be presented. Present original sets of the schemes to reviewers at an interim design conference.

At the conclusion of the interim phase, after resolutions to the comments have been agreed upon between DOR and Government reviewers, the Contractor may proceed to final design with the interior finishes scheme presented.

The SID information and samples are to be submitted in 8 ½" x 11" format using three ring binders with pockets on the inside of the cover. When there are numerous pages with thick samples, use more than one binder. Large D-ring binders are preferred to O-ring binders. Use page protectors that are strong enough to keep pages from tearing out. Anchor large or heavy samples with mechanical fasteners, Velcro, or double-faced foam tape rather than rubber cement or glue. Fold out items must have a maximum spread of 25 ½". Provide cover and spine inserts sheets identifying the document as "Structural Interior Design" package. Include the project title and location, project number, Contractor/A/E name and phone number(s), submittal stage and date.

Design submittal requirements include, but are not limited to:

#### 2.1.1. Narrative of the Structural Interior Design Objectives

The SID shall include a narrative that discusses the building related finishes. Include topics that relate to base standards, life safety, sustainable design issues, aesthetics, durability and maintainability, discuss the development and features as they relate to the occupants requirements and the building design.

#### 2.1.2. Interior Color Boards

Identify and key each item item on the color boards to the contract documents to provide a clear indication of how and where each item will be used. Arrange finish samples to the maximum extent possible by room type in order to illustrate room color coordination. Label all samples on the color boards with the manufacturer's name, patterns and colors name and number. Key or code samples to match key code system used on contract drawings.

Material and finish samples shall indicate true pattern, color and texture. Provide photographs or colored photocopies of materials or fabrics to show large overall patterns in conjunction with actual samples to show the actual colors. Finish samples must be large enough to show a complete pattern or design where practical.

Color boards shall include but not be limited to original color samples of the following:

All walls finishes and ceiling finishes, including corner guards, acrylic wainscoting and wall guards/chair rail finishes

All tile information, including tile grout color and tile patterns.

- All flooring finishes, including patterns.
- All door, door frame finishes and door hardware finishes
- All signage, wall base, toilet partitions, locker finishes and operable/folding partitions and trim

- All millwork materials and finishes (cabinets, counter tops, etc.)
- All window frame finishes and window treatments (sills, blinds, etc.)

Color board samples shall reflect all actual finish textures, patterns and colors required as specified. Patterned samples shall be of sufficient size to adequately show pattern and its repeat if a repeat occurs.

2.1.3. Exterior Color Boards

Prepare exterior finishes color boards in similar format as the interior finishes color boards, for presentation to the reviewers during an interim design conference. Provide original color samples of all exterior finishes including but not limited to the following:

- All Roof Finishes
- All Brick and Cast Stone Samples
- All Exterior Insulation and Finish Samples
- All Glass Color Samples
- All Exterior Metals Finishes
- All Window & Door Frame Finishes
- All Specialty Item Finishes, including trim

Identify each item on the exterior finishes color boards and key to the building elevations to provide a clear indication of how and where each item will be used.

2.2. STRUCTURAL INTERIOR DESIGN DOCUMENTS

2.2.1. General

Structural interior design related drawings must indicate the placement of extents of SID material, finishes and colors and must be sufficiently detailed to define all interior work. The following is a list of minimum requirements:

2.2.2. Finish Color Schedule

Provide finish color schedule(s) in the contract documents. Provide a finish code, material type, manufacturer, series, and color designations. Key the finish code to the color board samples and drawings.

2.2.3. Interior Finish Plans

Indicate wall and floor patterns and color placement, material transitions and extents of interior finishes.

2.2.4. Furniture Footprint Plans

Provide furniture footprint plans showing the outline of all freestanding and systems furniture for coordination of all other disciplines.

2.2.5. Interior Signage

Include interior signage plans or schedules showing location and quantities of all interior signage. Key each interior sign to a quantitative list indicating size, quantity of each type and signage text.

2.2.6. Interior Elevations, Sections and Details

Indicate material, color and finish placement.

**ATTACHMENT B**
**FURNITURE, FIXTURES & EQUIPMENT (FF&E) REQUIREMENTS**

## 1.0 FF&E REQUIREMENTS FOR THE INTERIM AND FINAL DESIGN SUBMITTALS

1.1. NOT USED

1.2. NOT USED

1.3. FURNITURE SELECTION

1.3.1. Select furniture from the GSA Schedules. Specify furniture available open market when an item is not available on the GSA Schedules. Provide justification fort items not available on the GSA Schedules.

1.3.2. To the greatest extent possible when specifying furniture work within a manufacturer's family of furniture for selections, example: Steelcase, Turnstone, Brayton International, Metro, and Vecta are all Steelcase companies. Each alternate should also be specified from a manufacturer's family of furniture, example: first set of alternates would be specified from Knoll's family of furniture and the second from Herman Miller family of furniture. It may be necessary to make some selections from other than a manufacturer's family of furniture if costs are not reasonable for particular items, some items are not available or appropriate for the facility or the items are not on GSA Schedule. If this occurs, consider specifying product from an open line that is accessible by numerous dealerships. Select office furniture including case goods, tables, storage, seating, etc. that is compatible in style, finish and color. Select furniture that complies with ANSI/BIFMA and from manufacturer's standard product line as shown in the most recent published price list and/or amendment and not custom product.

1.4. CONSTRUCTION

1.4.1. Provide knee space at workstations and tables that is not obstructed by panels/legs that interfere with knee space of seated person and provide desks, storage and tables with leveling devices to compensate for uneven floors.

1.4.2. Provide worksurface tops constructed to prevent warpage. Provide user friendly features such as radius edges. Do not use sharp edges and exposed connections and ensure the underside of desks, tables and worksurfaces are completely and smoothly finished. Provide abutting worksurfaces that mate closely and are of equal heights when used in side-by-side configurations in order to provide a continuous and level worksurface.

1.4.3. Drawers shall stay securely closed when in the closed position and protect wires from damage during drawer operation. Include a safety catch to prevent accidental removal when fully open

1.5. FINISHES AND UPHOLSTERY

1.5.1. Specify neutral colors for casegoods, furniture systems, storage and tables. Specify desk worksurfaces and table tops that are not too light or too dark in color and have a pattern to help hide soiling. Accent colors are allowed in break and lounge areas. Keep placement of furniture systems panel fabric accent colors to a minimum. All finishes shall be cleanable with ordinary household cleaning solutions.

1.5.2. Use manufacturer's standard fabrics; including textile manufacturers fabrics that have been graded into the furniture manufactures fabric grades and are available through their GSA Schedule. Customers Own Material (COM) can be used in headquarter buildings in command suites with executive furniture. Coordinate specific locations with Corps of Engineers Interior Designer.

1.5.3. Specify seating upholstery that meets Wyzenbeek Abrasion Test, 55,000 minimum rubs. Specify a soil retardant finish for woven fabrics if Crypton or vinyl upholstery is not provided for seating in dining areas. Use manufacturer's standard fabrics. This includes textile manufacturers fabrics that have been graded into the furniture manufactures fabric grades and are available through their GSA Schedule. Specify upholstery and finish colors and patterns that help hide soiling. Specify finishes that can be cleaned with ordinary household cleaning solutions.

1.6. ACCESSORIES

1.6.1. Specify all accessories required for completely finished furniture installation. Provide filing cabinets and storage for office supplies. Provide tack surfaces at workstations with overhead storage. Provide tackable surfaces at workstations with overhead storage.

1.6.2. Specify lockable desks and workstations and storage of steel construction. Use tempered glass glazing when glazing is required.

1.6.3. Workstations are to be equipped with stable keyboard trays that have height adjustability, tilting capability, including negative tilt, have a mouse pad at same height as the keyboard tray that can accommodate both left and right handed users, and retractable under worksurface.

1.7. MISSION UNIQUE EQUIPMENT

Funding for FF&E furniture items and mission unique equipment (MUE) items are from two different sources. Separate the designs and procurement documentation for FFE items and MUE. MUE includes, but is not limited to, items such as industrial shelving, workbenches, appliances, fitness equipment, IT equipment and supporting carts. The User will purchase and install mission unique equipment items, unless otherwise noted. Identify locations of known MUE items such as industrial shelving, workbenches, appliances, etc. for space planning purposes.

1.8. SUSTAINABILITY

1.8.1. For all designs provided regardless of facility type, make every effort to implement all aspects of sustainability to the greatest extent possible for all the selections made in the FF&E package. This includes but is not limited to the selection of products that consider: **Material Chemistry and Safety of Inputs** (What chemicals are used in the construction of the selections?); **Recyclability** (Do the selections contain recycled content?); **Disassembly** (Can the selections be disassembled at the end of their useful life to recycle their materials?).

1.8.2. Make selections to the greatest extent possible of products that possess current McDonough Braungart Design Chemistry (MBDC) certification or other “third-party” certified Cradle to Cradle program, Forest Stewardship Council (FSC) certification, GREENGAURD certification or similar “third-party” certified products consisting of low-emitting materials.

1.9. FURNITURE SYSTEMS

1.9.1. General.

Where appropriate, design furniture systems in open office areas. Coordinate style and color of furniture systems with other storage, seating, etc. in open office areas. Minimize the number of workstation typicals and the parts and pieces required for the design to assist in future reconfiguration and inventorying.

1.9.2. Connector Systems.

Specify a connector system that allows removal of a single panel or spine wall within a typical workstation configuration without requiring disassembly of the workstation or removal of adjacent panels. Specify connector system with tight connections and continuous visual seals. When Acoustical panels are used, provide connector system with continuous acoustical seals. Specify concealed clips, screws, and other construction elements, where possible.

1.9.3. Panels and Spine Walls

Specify panels and spine walls with hinged or removable covers that permit easy access to the raceway when required but are securely mounted and cannot be accidentally dislodged under normal conditions. Panels shall be capable of structurally supporting more than 1 fully loaded component per panel per side. Raceways are to be an integral part of the panel and must be able to support lay-in cabling and have a large capacity for electrical and IT. Do not thread cables through the frame.

1.9.4. Electrical And Information/Technology (IT)

Design furniture with electrical systems that meets requirements of UL 1286 when powered panels are required and UL approved task lights that meet requirements of NFPA 70. Dependent on user requirements and Section 01 10 00, paragraph 3 requirements, it is recommended that workstation electrical and IT wiring entry come from the building walls to eliminate the use of power poles and access at the floor. Design electrical and IT systems that are easily accessed in the spine wall and panels without having to move return panels and components. Electrical and IT management will be easily accessible by removable wall covers which can be removed while workstation components are still attached. Specify connector system that has continuation of electrical and IT wiring within workstations and workstation to workstation.

1.9.5. Pedestals

Specify pedestals that are interchangeable from left to right, and right to left, and retain pedestal locking system capability.

1.10. EXECUTIVE FURNITURE

1.10.1. Design for executive furniture in command areas, coordinate specific locations with Corps of Engineers Interior Designer. Use upgraded furniture, upholsteries and finishes in command suites. This includes but is not limited to wood casegoods, seating and tables. Select executive furniture casegoods from a single manufacturer and style line, to include workstations, credenzas, filing, and storage, etc.

1.10.2. Specify furniture with wood veneer finish (except worksurfaces) with mitered solid wood edge of same wood type. Provide worksurface plastic laminate that closely matches adjacent wood veneer. Other executive office furniture such as seating, tables, executive conference room furniture, etc. shall be compatible in style, finish and color with executive furniture casegoods.

1.11. SEATING

1.11.1. General

Specify appropriate chair casters and glides for the floor finish where the seating is located. Universal casters that are appropriate for both hard surface flooring and carpet are preferred. All seating shall support up to a minimum of 250 lbs.

1.11.2. Desk and Guest Seating

Select ergonomic desk chairs with casters, non-upholstered adjustable arms, waterfall front, swivel, tilt, variable back lock, adjustable back height or adjustable lumbar support, pneumatic seat height adjustment, and padded, contoured upholstered seat and back. Desk and guest chair backs may be other than upholstered such as mesh fabric if it is ergonomically designed, forms to back and is comfortable. Depending on scale of desk chair provide seat pan forward and back adjustment to increase or decrease depth of seat pan. All desk chairs shall have an adjustable seat height range of 4 1/2", range to include 16 1/2-20". Select guest chairs that are compatible in style, finish and color with the desk chairs.

1.11.3. Conference Room Seating

At tables, select ergonomic conference seating with casters, non-upholstered arms, waterfall front, swivel, tilt, pneumatic seat height adjustment, and padded, contoured seat and back, unless otherwise noted. Select arm height and/or design that allows seating to be moved up closely to the table top. Conference chair backs may be other than upholstered such as mesh fabric if it is ergonomically designed, forms to back and is comfortable. Perimeter conference chairs shall be compatible in style, finish and color with conference seating at the tables.

1.11.4. Lounge, Waiting and Reception Area Seating

Select seating with arms and cushioned, upholstered seat and back. In heavy use areas, arms shall be easily cleaned such as non-upholstered arms or upholstered arms with wood arm caps unless otherwise noted.

1.11.5. Break Room Seating

Select stackable seating that is easily cleaned. Seating shall be appropriate for table and counter heights as applicable with non-upholstered arms if arms are required. Chairs shall have metal legs and composite materials for seats.

1.11.6. Lounge, Waiting and Reception Furniture.

Design for end and coffee tables with plastic laminate tops that are compatible in style finish and color with the seating.

1.12. FILING AND STORAGE.

Select storage and shelving units that meet customer's functional load requirements for stored items. Specify counterweights for filing cabinets when required by the manufacturer for stability. File drawers shall allow only one drawer to be opened at a time. Provide heavy duty storage and shelving if information is not available.

1.13. TRAINING TABLES.

Don't use plastic laminate self edge. Training tables shall be reconfigurable, moveable and storable; lighter weight folding with dollies or castered as necessary. Specify dollies if required.

1.14. FURNITURE WARRANTIES.

Specify manufacturer's performance guarantees or warranties that include parts, labor and transportation as follows:

Furniture System, unless otherwise noted – 10 year minimum
Furniture System Task Lights – 2 year minimum, excluding bulbs
Furniture System Fabric – 3 year minimum
Desks - 10 year minimum
Seating, unless otherwise noted - 10 year minimum
Seating Mechanisms and Pneumatic Cylinders - 10 years
Fabric - 3 years minimum
Filing and Storage - 10 year minimum
Tables, unless otherwise noted - 10 year minimum
Table Mechanisms – 5 year
Table Ganging Device - 1 year
Items not listed above - 1 year minimum

# ATTACHMENT C
# TRACKING COMMENTS IN DRCHECKS

## 1.0 General

The Government and DB Contractor shall set up the project in Dr Checks. Throughout the design process, the parties shall enter, track, and back-check comments using the DrChecks system. Government reviewers enter design review comments into DrChecks. Designers of Record shall annotate comments timely and specifically to indicate exactly what action will be taken or why the action is not required. Comments considered critical by the conference participants shall be flagged as such.

## 2.0 DrChecks Review Comments

The DB Contractor and the Government shall monitor DrChecks to assure all comments are annotated and agreed to by the designers and reviewers prior to the next submittal. The DrChecks comments and responses shall be printed and included in the design analysis for record.

2.1. Conference participants (reviewers) will expect coordination between Design Analysis calculations and the submitted design. Reviewers will also focus on the design submittal's satisfaction of the contract requirements.

2.2. The Designers of Record shall answer each comment in DrChecks with a formal response prior to the next submittal, clearly indicating what action will be taken and what drawing/spec will change. Designers of Record are encouraged to directly contact reviewers to discuss and agree to the formal comment responses rather than relying only on DrChecks and review meetings to discuss comments. With the next design conference, reviewers will back-check answers to the comments against the submittal, in addition to reviewing additional design work.

2.3. Comments that, in the DB Contractor's opinion, require effort outside the scope of the contract shall be clearly indicated as such in DrChecks. The DB Contractor shall not proceed with work outside the contract until a modification to the contract is properly executed, if one is necessary.

## 3.0 DrChecks Initial Account Set-Up

To initialize an office's use of DrChecks, choose a contact person within the office to call the DrChecks Help Desk at 800-428-HELP, M-F, 8AM-5PM, Central time. This POC will be given an office password to distribute to others in the office. Individuals can then go to the hyperlink at http://www.projnet.org and register as a first time user. Upon registration, each user will be given a personal password to the DrChecks system.

3.1. Once the office and individuals are registered, the COE's project manager or lead reviewer will assign the individuals and/or offices to the specific project for review. At this point, persons assigned can make comments, annotate comments, and close comments, depending on their particular assignment.

## 4.0 DrChecks Reviewer Role

The DB Contractor is the technical reviewer and the Government is the compliance reviewer of the DB designers design documents. Each reviewer enters their own comments into the Dr Checks system. To enter comments:

4.1. Log into DrChecks.

4.2. Click on the appropriate project.

4.3. Click on the appropriate review conference. An Add comment screen will appear.

4.4. Select or fill out the appropriate sections (particularly comment discipline and type of document for sorting) of the comment form and enter the comment in the space provided.

4.5. Click the Add Comment button. The comment will be added to the database and a fresh screen will appear for the next comment you have.

4.6. Once comments are all entered, exit DrChecks by choosing “My Account” and then Logout.

**5.0 DrChecks Comment Evaluation**

The role of the designers of record is to evaluate and respond to the comments entered by the Government reviewers and by the DB Contractor. To respond to comments:

5.1. Log into DrChecks.

5.2. Click on the appropriate project.

5.3. Under “Evaluate” click on the number under “Pending”.

5.4. Locate the comments that require your evaluation. (Note: If you know the comment number you can use the Quick Pick window on your home page in DrChecks; enter the number and click on go.)

5.5. Select the appropriate evaluation (concur, non-concur, for information only, or check and resolve) and add the response.

5.6. Click on the Add button. The evaluation will be added to the database and a fresh screen will appear with the next comment.

5.7. Once evaluations are all entered, exit DrChecks by choosing “My Account” and then Logout.

**6.0 DrChecks Back-check**

At the following design conference, participants will back-check comment annotations against newly presented documents to verify that the designers' responses are acceptable and completed. The DB Contractor and Government reviewers shall either enter additional back-check comments, as necessary or close those that are resolved as a result of the design conferences:

6.1. Log into DrChecks.

6.2. Click on the appropriate project.

6.3. Under “My Backcheck” click on the number under “Pending”.

6.4. If you agree with the designer’s response select “Close Comment” and add a closing response if desired.

6.5. If you do not agree with the designer’s response or the submittal does not reflect the response given, select “Issue Open”, enter additional information.

6.6. Click on the Add button. The back-check will be added to the database and a fresh screen will appear with the next comment.

6.7. Once back-checks are all entered, exit DrChecks by choosing “My Account” and then Logout. The design is completed and final when there are no pending comments to be evaluated and there are no pending or open comments under back-check.

**ATTACHMENT D**
**SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW**

Instructions: The information outlined in this document shall be used to provide the minimum requirement for development of Fire Protection and Life Safety Code submittals for all building projects. Additional and supplemental information may be used to further develop the code review. Insert N/A after criteria, which may be "not applicable".

## 1.0 SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW

1.1. Project Name (insert name and location)

1.2. Applicable Codes and Standards

1.2.1. Unified Facilities Criteria (UFC): 3-600-01, Design: Fire Protection Engineering For Facilities

1.2.2. International Building Code (IBC) for fire resistance requirements, allowable floor area, building height limitations and building separation distance requirements, except as modified by UFC 3-600-01.

1.2.3. National Fire Protection Association (NFPA) 101 Life Safety Code (latest edition), for building egress and life safety and applicable criteria in UFC 3-600-01.

1.2.4. ADA and ABA Accessiblity Guidelines. For Buildings and Facilities See Section 01 10 00, Paragraph 3 for facility specific criteria.

1.3. Occupancy Classification
IBC chapters 3 and 4

1.4. Construction Type
IBC chapter 6

1.5. Area Limitations
IBC chapter 5, table 503

1.6. Allowable Floor Areas
IBC section 503, 505

1.7. Allowable area increases
IBC section 506, 507

1.8. Maximum Height of Buildings
IBC section 504

1.9. Fire-resistive substitution

1.10. Occupancy Separations
IBC table 302.3.2

1.11. Fire Resistive Requirements

1.11.1. Exterior Walls - [_____] hour rating, IBC table 601, 602

1.11.2. Interior Bearing walls - [_____] hour rating

1.11.3. Structural frame - [_____] hour rating

1.11.4. Permanent partitions - [_____] hour rating

1.11.5. Shaft enclosures - [_____] hour rating

1.11.6. Floors & Floor-Ceilings - [_____] hour rating

1.11.7. Roofs and Roof Ceilings - [_____] hour rating

1.12. Automatic Sprinklers and others used to determine the need for automatic Extinguishing Equipment, Extinguishing Systems, Foam Systems, Standpipe

1.12.1. UFC 3-600-01, chapters 4 and 6 systems, wet chemical systems, etc. State which systems are required and to what criteria they will be designed.

1.12.2. UFC 3-600-01, Appendix B Occupancy Classification. Note the classification for each room. This may be accomplished by classifying the entire building and noting exceptions for rooms that differ (E.g. The entire building is Light Hazard except boiler room and storage rooms which are [_____], etc.)

1.12.3. UFC 3-600-01, Chapter 3 Sprinkler Design Density, Sprinkler Design Area, Water Demand for Hose Streams (supply pressure and source requirements).

1.12.4. UFC 3-600-01, Chapter 4 Coverage per sprinkler head. Extended coverage sprinkler heads are not permitted.

1.12.5. Available Water Supply. Provide the results of the water flow tests showing the available water supply static pressure and residual pressure at flow. Based on this data and the estimated flow and pressure required for the sprinkler system, determine the need for a fire pump.

1.12.6. NFPA 13, Para. 8.16.4.6.1. Provide backflow preventer valves as required by the local municipality, authority, or water purveyor. Provide a test valve located downstream of the backflow preventer for flow testing the backflow preventer at full system demand flow. Route the discharge to an appropriate location outside the building.

1.13. Kitchen Cooking Exhaust Equipment

Describe when kitchen cooking exhaust equipment is provided for the project. Type of extinguishing systems for the equipment should be provided. per NFPA 96. Show all interlocks with manual release switches, fuel shutoff valves, electrical shunt trips, exhaust fans, and building alarms.

1.14. Portable Fire Extinguishers, fire classification and travel distance. per NFPA 10

1.15. Enclosure Protection and Penetration Requirements. - Opening Protectives and Through Penetrations

1.15.1. IBC Section712, 715 and Table 715.3. Mechanical rooms, exit stairways, storage rooms, janitor [_____] hour rating. IBC Table 302.1.1

1.15.2. Fire Blocks, Draft Stops, Through Penetrations and Opening Protectives

1.16. Fire Dampers. Describe where fire dampers and smoke dampers are to be used (IBC Section 716 and NFPA 90A}. State whether isolation smoke dampers are required at the air handler.

1.17. Detection Alarm and Communication. UFC 3-600-01, (Chapter 5); NFPA 101 para. 3.4 (chapters 12-42); NFPA 72

1.18. Mass Notification. Describe building/facility mass notification system (UFC 4-021-01) type and type of base-wide mass notification/communication system. State whether the visible notification appliances will be combined with the fire alarm system or kept separate. (Note: Navy has taken position to combine visible notification appliances with fire alarm).

1.19. Interior Finishes (classification). NFPA 101.10.2.3 and NFPA 101.7.1.4

1.20. Means of Egress

1.20.1. Separation of Means of Egress, NFPA 101 chapters 7 and 12-42; NFPA101.7.1.3

1.20.2. Occupant Load, NFPA101.7.3.1 and chapters 12-42.

1.20.3. Egress Capacity (stairs, corridors, ramps and doors) NFPA101.7.3.3

1.20.4. Number of Means of Egress, NFPA101.7.4 and chapters 12-42.

1.20.5. Dead end limits and Common Path of Travel, NFPA 101.7.5.1.6 and chapters 12-42.

1.20.6. Accessible Means of Egress (for accessible buildings), NFPA101.7.5.4

1.20.7. Measurement of Travel Distance to Exits, NFPA101.7.6 and chapters 12-42.

1.20.8. Discharge from Exits, NFPA101.7.7.2

1.20.9. Illumination of Means of Egress, NFPA101.7.8

1.20.10. Emergency Lighting, NFPA101.7.9

1.20.11. Marking of Means of Egress, NFPA101.7.10

1.21. Elevators, UFC 3-600-01, Chapter 6; IBC and ASME A17.1 - 2000,(Safety Code for Elevators and Escalators)

1.22. Accessibility Requirements, ADA and ABA Accessibility Guidelines for Buildings and Facilities

1.23. Certification of Fire Protection and Life Safety Code Requirements. (Note: Edit the Fire team membership if necessary). Preparers of this document certify the accuracy and completeness of the Fire Protection and Life Safety features for this project in accordance with the attached completed form(s).

1.24. Designer of Record. Certification of Fire protection and Life Safety Code Requirements. (Note: Edit the Fire team members if necessary). Preparers of this document certify the accuracy and completeness of the Fire Protection and Life Safety features of this project.

Fire Protection Engineer of Record:

_____

Signature and Stamp

Date

OR

Architect of Record:

_____

Signature and Stamp

Date

Mechanical Engineer of Record:

_____

Signature and Stamp

Date

Electrical Engineer of Record:

_____

Signature/Date

**ATTACHMENT E**
**LEED SUBMITTALS**

| LEED Credit Paragraph | Contractor Check Here if Credit is Claimed | **LEED-NC v2.2 Submittals (OCT09REV)** | | Provide for Credit Audit Only | | Date Submitted (to be filled in by Contractor) | Government Reviewer's Use (OCT09REV) |
|---|---|---|---|---|---|---|---|
| **PAR** | | **FEATURE** | **DUE AT** | | **REQUIRED DOCUMENTATION** | **DATE** | **REV** |
| **GENERAL** | | | | | | | |
| | GENERAL - All calculations shall be in accordance with LEED 2.2 Reference Guide. | | | | | | |
| | GENERAL: Obtain excel version of this spreadsheet at http://en.sas.usace.army.mil/enWeb, "Engineering Criteria". OCT09REV | | | | | | |
| | GENERAL - For all credits, narrative/comments may be added to describe special circumstances or considerations regarding the project's credit approach. | | | | | | |
| | GENERAL - Include all required LEED drawings indicated below in contract drawings with applicable discipline drawings, labeled For Reference Only. | | | | | | |
| | NOTE: Each submittal indicated with "**" differs from LEED certified project submittals by either having a different due date or being an added submittal not required by GBCI. OCT09REV | | | | | | |
| | OCT09REV GENERAL - Audit documentation may include but is not limited to what is indicated in this table. | | | | | | |
| | | | Closeout | | List of all Final Design submittals revised after final design to reflect actual closeout conditions. Revised Final Design submittals. - OR - Statement confirming that no changes have been made since final design that effect final design submittal documents. | | Proj Engr (PE) |
| **CATEGORY 1 - SUSTAINABLE SITES** | | | | | | | |
| SSPR1 | | Construction Activity Pollution Prevention (PREREQUISITE) | **Final Design | | List of drawings and specifications that address the erosion control, particulate/dust control and sedimentation control measures to be implemented. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | **Final Design | | Narrative that indicates which compliance path was used (NPDES or Local standards) and describes the measures to be implemented on the project. If a local standard was followed, provide specific information to demonstrate that the local standard is equal to or more stringent than the NPDES program. | | CIV |
| SS1 | | Site Selection | Final Design | | Statement confirming that project does not meet any of the prohibited criteria. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | X | LEED Site plan drawing that shows all proposed development, line depicting boundary of all bodies of water and/or wetlands within 100 feet of project boundary and a line depicting 5' elevation above 100 year flood line that falls within project boundary. Not required if neither condition applies. | | CIV |
| SS2 | | Development Density & Community Connectivity | Final Design | | Option 1: LEED Site vicinity plan showing project site and surrounding development. Show density boundary or note drawing scale. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Option 1: Table indicating, for project site and all surrounding sites within density radius (keyed to site vicinity plan), site area and building area. Project development density calculation. Density radius calculation. Development density calculation within density radius. | | CIV |
| | | | Final Design | | Option 2: LEED Site vicinity plan showing project site, the 1/2 mile community radius, pedestrian walkways and the locations of the residential development(s) and Basic Services surrounding the project site. | | CIV |
| | | | Final Design | | Option 2: List (including business name and type) of all Basic Services facilities within the 1/2 mile radius, keyed to site vicinity plan. | | CIV |
| SS3 | | Brownfield Redevelopment | Final Design | | Narrative describing contamination and the remediation activities included in project. Include statement indicating how site was determined to be a brownfield. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| SS4.1 | | Alternative Transportation: Public Transportation Access | Final Design | | Statement indicating which option for compliance applies. State whether public transportation is existing or proposed and, if proposed, cite source of this information. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Option 1: LEED Site vicinity plan showing project site, mass transit stops and pedestrian path to them with path distance noted. | | CIV |
| | | | Final Design | | Option 2: LEED Site vicinity plan showing project site, bus stops and pedestrian path to them with path distance noted. | | CIV |
| | | | | | | | |
| SS4.2 | | Alternative Transportation: Bicycle Storage & Changing Rooms | Final Design | | FTE calculation. Bicycle storage spaces calculation. Shower/changing facilities calculation. | | CIV |
| | | | Final Design | | List of drawings that show the location(s) of bicycle storage areas. Statement indicating distance from building entrance. | | CIV |
| | | | Final Design | | List of drawings that show the location(s) of shower/changing facilities and, if located outside the buiding, statement indicating distance from building entrance. | | ARC |
| | | | | | | | |
| SS4.3 | | Alternative Transportation: Low Emitting & Fuel Efficient Vehicles | Final Design | | Statement indicating which option for compliance applies. FTE calculation. Statement indicating total parking capacity of site. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Option 1: Low-emission & fuel-efficient vehicle calculation. | | CIV |

| LEED Credit Paragraph | Contractor Check Here if Credit is Claimed | LEED-NC v2.2 Submittals (OCT09REV) | | Provide for Credit Audit Only | | Date Submitted (to be filled in by Contractor) | Government Reviewer's Use (OCT09REV) |
|---|---|---|---|---|---|---|---|
| **PAR** | | **FEATURE** | **DUE AT** | | **REQUIRED DOCUMENTATION** | **DATE** | **REV** |
| | | | Final Design | | Option 1: List of drawings and specification references that show location and number of preferred parking spaces for low-emission & fuel-efficient vehicles and signage. | | CIV |
| | | | Final Design | | Option 1: Statement indicating quantity, make, model and manufacturer of low-emission & fuel-efficient vehicles to be provided. Statement confirming vehicles are zero-emission or indicating ACEEE vehicle scores. | | CIV |
| | | | Final Design | | Option 2: Low-emission & fuel-efficient vehicle parking calculation. | | CIV |
| | | | Final Design | | Option 2: List of drawings and specification references that show location and number of preferred parking spaces and signage. | | CIV |
| | | | Final Design | | Option 3: Low-emission & fuel-efficient vehicle refueling station calculation. | | CIV |
| | | | Final Design | | Option 3: List of drawings and specifications indicating location and number of refueling stations, fuel type and fueling capacity for each station for an 8-hour period. | | CIV |
| | | | Closeout | X | Option 3: Construction product submittals indicating what was provided and confirming compliance with respect to fuel type and fueling capacity for each station for an 8-hour period. | | CIV |
| | | | | | | | |
| SS4.4 | | Alternative Transportation: Parking Capacity | Final Design | | Statement indicating which option for compliance applies. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Option 1: Preferred parking calculation including number of spaces required, total provided, preferred spaces provided and percentage. | | CIV |
| | | | Final Design | | Option 2: FTE calculation. Preferred parking calculation including number of spaces provided, preferred spaces provided and percentage. | | CIV |
| | | | Final Design | | Options 1 and 2: List of drawings and specification references that show location and number of preferred parking spaces and signage. | | CIV |
| | | | Final Design | | Option 3: Narrative indicating number of spaces required and provided and describing infrastructure and support programs with description of project features to support them. | | CIV |
| | | | | | | | |
| SS5.1 | | Site Development: Protect or Restore Habitat | **Final Design | | Option 1: List of drawing and specification references that convey site disturbance limits. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | **Final Design | | Option 2: LEED site plan drawing that delineates boundaries of each preserved and restored habitat area with area (sf) noted for each. | | CIV |
| | | | **Final Design | | Option 2: Percentage calculation of restored/preserved habitat to total site area. List of drawings and specification references that convey restoration planting requirements. | | CIV |
| | | | | | | | |
| SS5.2 | | Site Development: Maximize Open Space | Final Design | | Option 2: LEED site plan drawing delineating boundary of vegetated open space adjacent to building with areas of building footprint and designated open space noted. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | | | | | |
| SS6.1 | | Stormwater Design: Quantity Control | Final Design | | Statement indicating which option for compliance applies. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Option 1: Indicate pre-development and post-development runoff rate(cfs) and runoff quantity (cf) -OR - Narrative describing site conditions, measures and controls to be implemented to prevent excessive stream velocities and erosion. | | CIV |
| | | | Final Design | | Option 2: Indicate pre-development and post-development runoff rate(cfs) and runoff quantity (cf). Indicate percent reduction in each. | | CIV |
| | | | | | | | |
| SS6.2 | | Stormwater Design: Quality Control | Final Design | | For non-structural controls, list all BMPs used and, for each, describe the function of the BMP and indicate the percent annual rainfall treated. List all structural controls and, for each, describe the pollutant removal and indicate the percent annual rainfall treated. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | | | | | |
| SS7.1 | | Heat Island Effect: Non-Roof | **Final Design | | LEED site plan drawing indicating locations and quantities of each paving type, including areas of shaded pavement. Percentage calculation indicating percentage of reflective/shaded/open grid area. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | | | | | |
| SS7.2 | | Heat Island Effect: Roof | Final Design | | Option 1: Percentage calculation indicating percentage of SRI compliant roof area. List of drawings and specification references that convey SRI requirements and roof slopes. | | ARC |

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| | | | Final Design OCT09REV | | Option 1: List of specified roof materials indicating, for each, product type, manufacturer, product name and identification if known, SRI value and roof slope. OCT09REV | | ARC |
| | | | **Closeout OCT09REV | | Option 1: List of installed roof materials indicating, for each, manufacturer, product name and identification, SRI value and roof slope. | | PE |
| | | | Closeout | X | Option 1: Manufacturer published product data or certification confirming SRI | | PE |
| | | | Final Design | | Option 2: Percentage calculation indicating percentage of vegetated roof area. | | ARC |
| | | | Final Design | | Option 3: Combined reflective and green roof calculation. | | ARC |
| | | | Final Design OCT09REV | | Option 3: List of specified roof materials indicating, for each, product type, manufacturer, product name and identification if known, SRI value and roof slope. OCT09REV | | |
| | | | **Closeout OCT09REV | | Option 3: List of installed roof materials indicating, for each, manufacturer, product name and identification, SRI value and roof slope. | | PE |
| | | | Closeout | X | Option 3: Manufacturer published product data or certification confirming SRI | | PE |
| | | | | | | | |
| SS8 | | Light Pollution Reduction | Final Design | | Interior Lighting: List of drawings and specification references that convey interior lighting requirements (location and type of all installed interior lighting, location of non-opaque exterior envelope surfaces, allowing confirmation that maximum candela value from interiorfixtures does not intersect non-opaque building envelope surfaces). - OR - List of drawings and specification references that show automatic lighting controls that turn off non-essential lighting during non-business hours. | | ELEC |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | ELEC |
| | | | Final Design | | Exterior Lighting: List of drawings and specification references that convey exterior lighting requirements (location and type of all site lighting and building façade/landscape lighting). | | ELEC |
| | | | Final Design | | Exterior Site Lighting Power Density (LPD): Tabulation for exterior site lighting indicating, for each location identification or description, units of measure, area or distance of the location, actual LPD using units consistent with ASHRAE 90.1, and the ASHRAE allowable LPD for that type of location. Percentage calculation of actual versus allowable LPD for all site lighting. | | ELEC |
| | | | Final Design | | Exterior Building Facade/Landscape Lighting Power Density (LPD): Tabulation for exterior building facade/landscape lighting indicating, for each location identification or description, units of measure, area or distance of the location, actual LPD using units consistent with ASHRAE 90.1, and the ASHRAE allowable LPD for that type of location. Percentage calculation of actual versus allowable LPD for all building facade/landscape lighting. | | ELEC |
| | | | Final Design | | Exterior Lighting IESNA Zone: Indicate which IESNA zone is applicable to the project. | | ELEC |
| | | | Final Design | | Exterior Lighting Site Lumen table indicating, for each fixture type, quantity installed, initial lamp lumens per luminaire, initial lamp lumens above 90 degrees from Nadir, total lamp lumens and total lamp lumens above 90 degrees. Percentage of site lamp lumens above 90 degrees from nadir to total lamp lumens. | | ELEC |
| | | | Final Design | | Exterior Lighting Narrative describing analysis used for addressing requirements for light trespass at site boundary and beyond. | | ELEC |
| | | | | | | | |
| **CATEGORY 2 – WATER EFFICIENCY** | | | | | | | |
| WE1.1 | | Water Efficient Landscaping: Reduce by 50% | Final Design | | Statement indicating which option for compliance applies. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Calculation indicating, for baseline and design case, total water applied, total potable water applied, total non-potable water applied. Design case percent potable water reduction. If nonpotable water is used, indicate source of nonpotable water. | | CIV |
| | | | Final Design | | List of landscape plan drawings. | | CIV |
| | | | Final Design | | Narrative describing landscaping and irrigation design strategies, including water use calculation methodology used to determine savings and, if non-potable water is used, specific information about source and available quantity. | | CIV |
| WE1.2 | | Water Efficient Landscaping: No Potable Water Use or No Irrigation | Same as WE1.1 | | Same as WE1.1 | | CIV |
| WE2 | | Innovative Wastewater Technologies | Final Design | | Statement confirming which option for compliance applies. | | MEC |

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| | | | Final Design | | Statement confirming which occupancy breakdown applies (default or special). For special occupancy breakdown, indicate source and explanation for ratio. | | MEC |
| | | | Final Design | | Occupancy calculation including male/female numbers for FTEs, visitors, students, customers, residential and other type occupants/users | | MEC |
| | | | Final Design | | Statement indicating percent of male restrooms with urinals. Statement indicating annual days of operation. | | MEC |
| | | | Final Design | | Baseline flush fixture calculation spreadsheet indicating, for each fixture type, gender, flush rate, daily uses per person for each occupant type identified in occupancy calculation and annual baseline flush fixture water usage. | | MEC |
| | | | Final Design | | Design case flush fixture calculation spreadsheet indicating, for each fixture type, gender, fixture manufacturer, fixture model number, flush rate, percent of occupants using this fixture type, daily uses per person for each occupant type identified in occupancy calculation and annual design case flush fixture water usage. | | MEC |
| | | | Final Design | | Option 1: If onsite non-potable water is used, identify source(s), indicate annual quantity from each source and indicate total annual quantity from all onsite non-potable water sources. | | MEC |
| | | | Final Design | | Option 1: Summary calculation indicating baseline annual water consumption, design case annual water consumption, non-potable annual water consumption and total percentage annual water savings. | | MEC |
| | | | Final Design | | Option 2: Statement confirming on-site treatment of all generated wastewater to tertiary standards and all treated wastewater is either infiltrated or used on-site. | | MEC |
| | | | Final Design | | Option 2: List of drawing and specification references that convey design of on-site wastewater treatment features. | | CIV |
| | | | Final Design | | Option 2: On-site water treatment quantity calculation indicating all on-site wastewater source(s), annual quantity treated, annual quantity infiltrated and annual quantity re-used on site from each source and totals for annual quantity treated, annual quantity infiltrated and annual quantity re-used on site from all sources. | | CIV |
| | | | Final Design | | Option 2: Wastewater summary calculation indicating design case annual flush fixture water usage, annual on-site water treatment and percentage sewage convyance reduction. | | MEC |
| | | | Final Design | | Narrative describing project strategy for reduction of potable water use for sewage conveyance, including specific information on reclaimed water usage and treated wastewater usage. | | MEC |
| WE3.1 | | Water Use Reduction: 20% Reduction | Final Design | | Statement confirming which occupancy breakdown applies (default or special). For special occupancy breakdown, indicate source and explanation for ratio. | | MEC |
| | | | Final Design | | Occupancy calculation including male/female numbers for FTEs, visitors, students, customers, residential and other type occupants/users | | MEC |
| | | | Final Design | | Statement indicating percent of male restrooms with urinals. Statement indicating annual days of operation. | | MEC |
| | | | Final Design | | Baseline flush fixture calculation spreadsheet indicating, for each fixture type, gender, flush rate, daily uses per person for each occupant type identified in occupancy calculation and annual baseline flush fixture water usage. | | MEC |
| | | | Final Design | | Design case flush fixture calculation spreadsheet indicating, for each fixture type, gender, fixture manufacturer, fixture model number, flush rate, percent of occupants using this fixture type, daily uses per person for each occupant type identified in occupancy calculation and annual design case flush fixture water usage. | | MEC |
| | | | Closeout | X | Manufacturer published product data or certification confirming fixture water usage. | | PE |
| WE3.2 | | Water Use Reduction: 30% Reduction | Same as WE3.1 | | Same as WE3.1 | | MEC |
| **CATEGORY 3 – ENERGY AND ATMOSPHERE** | | | | | | | |
| EAPR1 | | Fundamental Commissioning of the Building Energy Systems (PREREQUISITE) | **Final Design | | **Owner's Project Requirements document | | ALL |
| | | | **Final Design | | **Basis of Design document for commissioned systems | | MEC, ELEC |
| | | | **Final Design | | **Commissioning Plan | | MEC, ELEC |

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| | | | Closeout | | Statement confirming all commissioning requirements have been incorporated into construction documents. | | PE |
| | | | Closeout | | Commissioning Report | | PE |
| EAPR2 | | Minimum Energy Performance (PREREQUISITE) | Final Design | | Statement listing the mandatory provisions of ASHRAE 90.1 that project meets relative to compliance with this prerequisite and indicating which compliance path was used. | | MEC ELEC ARC |
| EAPR3 | | Fundamental Refrigerant Management (PREREQUISITE) | Final Design | | Statement indicating which option for compliance applies. | | MEC |
| | | | Final Design | | Option 2: Narrative describing phase out plan, including specific information on phase out dates and refrigerant quantities. | | MEC |
| EA1 | | Optimize Energy Performance | Final Design | | Statement indicating which compliance path option applies. | | MEC |
| | | | Final Design | | Option 1: Statement confirming simulation software capabilities and confirming assumptions and methodology. | | MEC |
| | | | Final Design | | Option 1: General information including simulation program, principal heating source, percent new construction and renovation, weather file, climate zone and Energy Star Target Finder score. | | MEC |
| | | | Final Design | | Option 1: Space summary listing, for each building use, the conditioned area, unconditioned area and total area and include total area for each category | | MEC |
| | | | Final Design | | Option 1: List of all simulation output advisory message data and show difference between baseline and proposed design | | MEC |
| | | | Final Design | | Option 1: Comparison summary for energy model inputs including description of baseline and design case energy model inputs, showing both by element type | | MEC |
| | | | Final Design | | Option 1: Energy type summary lising, for each energy type, utility rate description, units of energy and units of demand | | MEC |
| | | | Final Design | | Option 1: Statement indicating whether project uses on-site renewable energy. If yes, list all sources and indicate, for each source, backup energy type, annual energy generated, rated capacity and renewable energy cost | | MEC |
| | | | Final Design | | Option 1: If analysis includes exceptional calculation methods, statement describing how exceptional calculation measure cost savings is determined | | MEC |
| | | | Final Design | | Option 1: If analysis includes exceptional calculation methods, for each exceptional calculation method indicate energy types and, for each energy type, annual energy savings, annual cost savings, and brief descriptive narrative | | MEC |
| | | | Final Design | | Option 1: Baseline performance rating compliance report table indicating, for each energy end use, whether it is a process load, energy type, annual and peak energy demand for all four orientations. For each orientation indicate total annual energy use for each orientation and total annual process energy use. | | MEC |
| | | | Final Design | | Option 1: Baseline energy cost table indicating, for each energy type, annual cost for all four orientations and building total energy cost. | | MEC |
| | | | Final Design | | Option 1: Proposed Design performance rating compliance report table indicating, for each energy end use, whether it is a process load, energy type, annual and peak energy demand, baseline annual and peak energy demand and percent savings. Indicate total annual energy use and total annual process energy use for both proposed design and baseline and percent savings. | | MEC |
| | | | Final Design | | Option 1: Proposed Design energy cost table indicating, for each energy type, annual cost for all four orientations and building total energy cost. | | MEC |
| | | | Final Design | | Option 1: Energy cost and consumption by energy type report indicating, for each energy type, proposed design and baseline annual use and annual cost, percent savings annual use and annual cost. Indicate for renewable energy annual energy generated and annual cost. Indicate exceptional calculations annual energy savings and annual cost savings. Indicate building total annual energy use, annual energy cost for proposed design and baseline and indicate percent savings annual energy use and annual energy cost. | | MEC |

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| | | | Final Design | | Option 1: Compliance summaries from energy simulation software. If software does not produce compliance summaries provide output summaries and example input summaries for baseline and proposed design supporting data in the tables. Output summaries must include simulated energy consumption by end use and total energy use and cost by energy type. Example input summaries should represent most common systems and must include occupancy, use pattern, assumed envelope component sizes and descriptive features and assumed mechanical equipment types and descriptive features | | MEC |
| | | | Final Design | | Option 1: Energy rate tariff from project energy providers (only if not using LEED Reference Guide default rates) | | MEC |
| EA2.1 | | On-Site Renewable Energy | Final Design | | Statement indicating which compliance path option applies. | | ELEC |
| | | | Final Design | | List all on-site renewable energy sources and indicate, for each source, backup energy type, annual energy generated, rated capacity and renewable energy cost. Indicate total annual energy use (all sources), total annual energy cost (all sources) and percent renewable energy cost. | | ELEC MEC |
| | | | Final Design | | Option 1: Indicate, for renewable energy,proposed design total annual energy generated and annual cost. | | ELEC MEC |
| | | | Final Design | | Option 2: Indicate CBECS building type and building gross area. Provide the following CBECS data: median annual electrical intensity, median annual non-electrical fuel intensity, average electric energy cost, average non-electric fuel cost, annual electric energy use and cost, annual non-electric fuel use and cost. | | ELEC MEC |
| | | | Final Design | | Option 2: Narrative describing renewable systems and explaining calculation method used to estimate annual energy generated, including factors influencing performance. | | ELEC MEC |
| EA2.2 | | On-Site Renewable Energy | Same as EA2.1 | | Same as EA2.1 | | ELEC MEC |
| EA2.3 | | On-Site Renewable Energy | Same as EA2.1 | | Same as EA2.1 | | ELEC MEC |
| EA3 | | Enhanced Commissioning | **Final Design | | **Owner's Project Requirements document (OPR) | | ALL |
| | | | **Final Design | | **Basis of Design document for commissioned systems (BOD) | | ELEC MEC |
| | | | **Final Design | | **Commissioning Plan | | ELEC MEC |
| | | | Closeout | | Statement confirming all commissioning requirements have been incorporated into construction documents. | | PE |
| | | | Closeout | | **Commissioning Report | | PE |
| | | | **Final Design | | Statement by CxA confirming Commissioning Design Review | | |
| | | | Closeout | | Statement by CxA confirming review of Contractor submittals for compliance with OPR and BOD | | PE |
| | | | Closeout | | **Systems Manual | | PE |
| | | | Closeout | | Statement by CxA confirming completion of O&M staff and occupant training | | PE |
| | | | Closeout | | **Scope of work for post-occupancy review of building operation, including plan for resolution of outstanding issues | | PE |
| | | | **Predesign | | Statement confirming CxA qualifications and contractual relationships relative to work on this project, demonstrating that CxA is an independent third party. | | MEC |
| EA4 | | Enhanced Refrigerant Management | Final Design | | Refrigerant impact calculation table with all building data and calculation values as shown in LEED 2.2 Reference Guide Example Calculations | | MEC |
| | | | Final Design | | Narrative describing any special circumstances or explanatory remarks OCT09REV | | |
| | | | Closeout | X | Cut sheets highlighting refrigerant data for all HVAC components. | | PE |
| EA5 | | Measurement & Verification | Closeout | | Statement indicating which compliance path option applies. | | PE |
| | | | Closeout | | Measurement and Verification Plan | | PE |
| | | | Closeout | | **Scope of work for post-occupancy implementation of M&V plan | | PE |
| EA6 | | Green Power | Closeout | | Statement indicating which compliance path option applies. | | PE |
| | | | Closeout | | Option 1: Indicate proposed design total annual electric energy usage | | PE |
| | | | Closeout | | Option 2: Indicate actual total annual electric energy usage | | PE |
| | | | Closeout | | Option 3: Calculation indicating building type, total gross area, median electrical intensity and annual electric energy use | | PE |

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| | | | Closeout | | Green power provider summary table indicating, for each purchase type, provider name, annual quantity green power purchased and contract term. Indicate total annual green power use and indicate percent green power | | PE |
| | | | Closeout | | Narrative describing how Green Power or Green Tags are purchased | | PE |
| **CATEGORY 4 – MATERIALS AND RESOURCES** | | | | | | | |
| MRPR1 | | Storage & Collection of Recyclables (PREREQUISITE) | Final Design | | Statement confirming that recycling area will accommodate recycling of plastic, metal, paper, cardboard and glass. Narrative indicating any other materials addressed and coordination with pickup. | | ARC |
| MR1.1 | | Building Reuse: Maintain 75% of Existing Walls, Floors & Roof | **Final Design | | If project includes a building addition, confirm that area of building addition does not exceed 2x the area of the existing building. | | ARC |
| | | | **Final Design | | Spreadsheet listing, for each building structural/envelope element, the existing area and reused area. Total percent reused. | | ARC |
| MR1.2 | | Building Reuse: Maintain 95% of Existing Walls, Floors & Roof | Same as MR1.1 | | Same as MR1.1 | | ARC |
| MR1.3 | | Building Reuse: Maintain 50% of Interior Non-Structural Elements | **Final Design | | If project includes a building addition, confirm that area of building addition does not exceed 2x the area of the existing building. | | ARC |
| | | | **Final Design | | Spreadsheet listing, for each building interior non-structural element, the existing area and reused area. Total percent reused. | | ARC |
| MR2.1 | | Construction Waste Management: Divert 50% From Disposal | **Preconstruction | | Waste Management Plan | | PE |
| | | | **Construction Quarterly and Closeout | | Spreadsheet calculations indicating material description, disposal/diversion location (or recycling hauler), weight, total waste generated, total waste diverted, diversion percentage | | PE |
| | | | | | OCT09REV | | |
| | | | **Construction Quarterly and Closeout | | Receipts/tickets for all items on spreadsheet | | PE |
| MR2.2 | | Construction Waste Management: Divert 75% From Disposal | Same as MR2.1 | | Same as MR2.1 | | PE |
| MR3.1 | | Materials Reuse: 5% | Closeout | | Statement indicating total materials value and whether default or actual. | | PE |
| | | | Closeout | | Spreadsheet calculations indicating, for each reused/salvaged material, material description, source or vendor, cost. Total reused/salvaged materials percentage. | | PE |
| MR3.2 | | Materials Reuse: 10% | Same as MR3.1 | | Same as MR3.1 | | PE |
| MR4.1 | | Recycled Content: 10% (post-consumer + 1/2 pre-consumer) | Closeout | | Statement indicating total materials value and whether default or actual. | | PE |
| | | | Closeout | | Spreadsheet calculations indicating, for each recycled content material, material name/description, manufacturer, cost, post-consumer recycled content percent, pre-consumer recycled content percent, source of recycled content data. Total post-consumer content materials cost, total pre-consumer content materials cost, total combined recycled content materials cost, recycled content materials percentage. | | PE |
| | | | Final Design or NLT Preconstruction | | **Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal. OCT09REV | | PE |
| | | | Closeout | X | Manufacturer published product data or certification, confirming recycled content percentages in spreadsheet | | PE |
| MR4.2 | | Recycled Content: 20% (post-consumer + 1/2 pre-consumer) | Same as MR4.1 | | Same as MR4.1 | | PE |
| MR5.1 | | Regional Materials:10% Extracted, Processed & Manufactured Regionally | Closeout | | Statement indicating total materials value and whether default or actual. | | PE |
| | | | Closeout | | Spreadsheet calculations indicating, for each regional material, material name/description, manufacturer, cost, percent compliant, harvest distance, manufacture distance, source of manufacture and harvest location data. Total regional materials cost, regional materials percentage. | | PE |
| | | | Preconstruction OCT09REV | | **Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal. OCT09REV | | PE |
| | | | Closeout | X | Manufacturer published product data or certification confirming regional material percentages in spreadsheet | | PE |

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| MR5.2 | | Regional Materials:20% Extracted, Processed & Manufactured Regionally | Same as MR5.1 | | Same as MR5.1 | | PE |
| MR6 | | Rapidly Renewable Materials | Closeout | | Statement indicating total materials value and whether default or actual. | | PE |
| | | | Closeout | | Spreadsheet calculations indicating, for each rapidly renewable material, material name/description, manufacturer, cost, rapidly renewable content percent, rapidly renewable product value. Total rapidly renewable product value, rapidly renewable materials percentage. | | PE |
| | | | Final Design OCT09REV | | **Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal. OCT09REV | | ARC |
| | | | Closeout | X | Manufacturer published product data or certification confirming rapidly renewable material percentages in spreadsheet | | PE |
| MR7 | | Certified Wood | Closeout | | Statement indicating total materials value and whether default or actual. | | PE |
| | | | Closeout | | Spreadsheet calculations indicating, for each certified wood material, material name/description, vendor, cost, wood component percent, certified wood percent of wood component, FSC chain of custody certificate number. Total certified wood product value, certified wood materials percentage. | | PE |
| | | | Final Design or NLT Preconstruction | | **Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal. OCT09REV | | PE |
| | | | Closeout | X | Vendor invoices, FSC chain of custody certificates and anufacturer published product data or certification confirming all certified wood materials percentages in spreadsheet. | | PE |
| **CATEGORY 5 – INDOOR ENVIRONMENTAL QUALITY** | | | | | | | |
| EQPR1 | | Minimum IAQ Performance (PREREQUISITE) | Final Design | | Statement indicating which option for compliance applies, stating applicable criteria/requirement, and confirming that project has been designed to meet the applicable requirements. | | MEC |
| | | | Final Design | | Narrative describing the project's ventilation design, including specifics about fresh air intake volumes and special considerations. | | MEC |
| EQPR2 | | Environmental Tobacco Smoke (ETS) Control (PREREQUISITE) | Final Design | | Statement indicating which option for compliance applies, stating applicable criteria/requirement, and confirming that project has been designed to meet the applicable requirements. | | ARC |
| | | | Final Design | | List of drawing and specification references that convey conformance to applicable requirements (signage, exhaust system, room separation details, etc). | | ARC |
| EQ1 | | Outdoor Air Delivery Monitoring | Final Design | | Statement indicating which option for compliance applies and confirming that project has been designed to meet the applicable requirements. | | MEC |
| | | | Final Design | | List of drawing and specification references that convey conformance to applicable requirements. | | MEC |
| | | | Final Design | | Narrative describing the project's ventilation design and CO2 monitoring system, including specifics about monitors, operational parameters and setpoints. | | MEC |
| | | | Closeout | X | Cut sheets for CO2 monitoring system. | | PE |
| EQ2 | | Increased Ventilation | Final Design | | Statement indicating which option for compliance applies and confirming that project has been designed to meet the applicable requirements. | | MEC |
| | | | Final Design | | Narrative describing the project's ventilation design, including specifics about zone fresh air intake volumes and demonstrating compliance. | | MEC |
| | | | Final Design | | Option 2: Narrative describing design method used for determining natural ventilation design, including calculation methodology/model results and demonstrating compliance. | | MEC |
| | | | Final Design | | List of drawing and specification references that convey conformance to applicable requirements. | | MEC |
| EQ3.1 | | Construction IAQ Management Plan: During Construction | **Preconstruction | | Construction IAQ Management Plan | | PE |
| | | | Closeout | | Statement confirming whether air handling units were operated during construction | | PE |
| | | | Closeout | | Dated jobsite photos showing examples of IAQ management plan practices being implemented. Label photos to indicate which practice they demonstrate. Minimum one photo of each practice at each building. | | PE |
| | | | Closeout | | Spreadsheet indicating, for each filter installed during construction, the manufacturer, model number, MERV rating, location installed, and if it was replaced immediately prior to occupancy. | | PE |
| EQ3.2 | | Construction IAQ Management Plan: Before Occupancy | **Preconstruction | | Construction IAQ Management Plan | | PE |

| LEED Credit Paragraph | Contractor Check Here if Credit is Claimed | LEED-NC v2.2 Submittals (OCT09REV) | | Provide for Credit Audit Only | | Date Submitted (to be filled in by Contractor) | Government Reviewer's Use (OCT09REV) |
|---|---|---|---|---|---|---|---|
| **PAR** | | **FEATURE** | **DUE AT** | | **REQUIRED DOCUMENTATION** | **DATE** | **REV** |
| | | | Closeout | | Statement indicating which option for compliance applies and confirming that required activities have occurred that meet the applicable requirements. | | PE |
| | | | Closeout | | Option 1a: Narrative describing the project's flushout process, including specifics about temperature, airflow and duration, special considerations (if any) and demonstrating compliance. | | PE |
| | | | Closeout | | Option 1b: Narrative describing the project's pre-occupancy and post-occupancy flushout processes, including specifics about temperature, airflow and duration, special considerations (if any) and demonstrating compliance. | | PE |
| | | | Closeout | | Option 2: Narrative describing the project's IAQ testing process, including specifics about contaminants tested for, locations, remaining work at time of test, retest parameters and special considerations (if any). | | PE |
| | | | Closeout | | Option 2: IAQ testing report demonstrating compliance. | | PE |
| EQ4.1 | | Low Emitting Materials: Adhesives & Sealants | Closeout | | Spreadsheet indicating, for each applicable indoor adhesive, sealant and sealant primer used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data. | | PE |
| | | | Closeout | | Spreadsheet indicating, for each applicable indoor aerosol adhesive, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data - OR - Statement confirming no indoor aerosol adhesives were used for the project. | | PE |
| | | | Closeout | X | Manufacturer published product data or certification confirming material VOCs in spreadsheet | | PE |
| EQ4.2 | | Low Emitting Materials: Paints & Coatings | Closeout | | Spreadsheet indicating, for each applicable indoor paint and coating used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data. | | PE |
| | | | Closeout | | Spreadsheet indicating, for each applicable indoor anti-corrosive/anti-rust paint and coating used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data - OR - Statement confirming no indoor anti-corrosive/anti-rust paints were used for the project . | | PE |
| | | | Closeout | X | Manufacturer published product data or certification confirming material VOCs in spreadsheet | | PE |
| EQ4.3 | | Low Emitting Materials: Carpet Systems | Closeout | | Spreadsheet indicating, for each indoor carpet used, the manufacturer, product name/model number, if it meets LEED requirement (yes/no) and source of LEED compliance data. | | PE |
| | | | Closeout | | Spreadsheet indicating, for each indoor carpet cushion used, the manufacturer, product name/model number, if it meets LEED requirement (yes/no) and source of LEED compliance data - OR - Statement confirming no indoor carpet cushion was used for the project. | | PE |
| | | | Closeout | X | Manufacturer published product data or certification confirming material CRI label in spreadsheet | | PE |
| EQ4.4 | | Low Emitting Materials: Composite Wood & Agrifiber Products | Closeout | | Spreadsheet indicating, for each indoor composite wood and agrifiber product used, the manufacturer, product name/model number, if it contains added urea formaldehyde (yes/no) and source of LEED compliance data. | | PE |
| | | | Closeout | X | Manufacturer published product data or certification confirming material urea formaldehyde in spreadsheet | | PE |
| EQ5 | | Indoor Chemical & Pollutant Source Control | Closeout OCT09REV | | Spreadsheet indicating, for each permanent entryway system used, the manufacturer, product name/model number and description of system. Roll-up and carpet systems requiring weekly cleaning to earn this credit are not a permitted option for Army projects. | | PE |
| | | | Final Design | | List of drawing and specification references that convey locations and installation methods for entryway systems. | | ARC |
| | | | Final Design | | Spreadsheet indicating, for each chemical use area, the room number, room name, description of room separation features (walls, floor/ceilings, openings) and pressure differential from surrounding spaces with doors closed - OR - Statement confirming that project includes no chemical use areas and that no hazardous cleaning materials are needed for building maintenance. | | ARC MEC |
| | | | Final Design | | If project includes chemical use areas: List of drawing and specification references that convey locations of chemical use areas, room separation features and exhaust system. | | ARC MEC |
| | | | Closeout OCT09REV | | If project includes chemical use areas: Spreadsheet indicating, for AHUs/mechanical ventilation equipment serving occupied areas, the manufacturer, model number, MERV rating, location installed, and if it was replaced immediately prior to occupancy (yes/no) - OR - Statement confirming that project does not use mechanical equipment for ventilation of occupied areas. | | PE |

| LEED Credit Paragraph | Contractor Check Here if Credit is Claimed | LEED-NC v2.2 Submittals (OCT09REV) | | Provide for Credit Audit Only | | Date Submitted (to be filled in by Contractor) | Government Reviewer's Use (OCT09REV) |
|---|---|---|---|---|---|---|---|
| **PAR** | | **FEATURE** | **DUE AT** | | **REQUIRED DOCUMENTATION** | **DATE** | **REV** |
| EQ6.1 | | Controllability of Systems: Lighting | Final Design | | Calculation indicating total number of individual workstations, number of workstations with individual lighting controls and the percentage of workstations with individual lighting controls. | | ELEC |
| | | | Final Design | | For each shared multi-occupant space, provide a brief description of lighting controls. | | ELEC |
| | | | Final Design | | Narrative describing lighting control strategy, including type and location of individual controls and type and location of controls in shared multi-occupant spaces. | | ELEC |
| EQ6.2 | | Controllability of Systems: Thermal Comfort | Final Design | | Calculation indicating total number of individual workstations, number of workstations with individual thermal comfort controls and the percentage of workstations with individual thermal comfort controls. | | MEC |
| | | | Final Design | | For each shared multi-occupant space, provide a brief description of thermal comfort controls. | | MEC |
| | | | Final Design | | Narrative describing thermal comfort control strategy, including type and location of individual and shared multi-occupant controls. | | MEC |
| EQ7.1 | | Thermal Comfort: Design | Final Design | | Design criteria spreadsheet indicating, for spring, summer, fall and winter, maximum indoor space design temperature, minimum indoor space design temperature and maximum indoor space design humidity. | | MEC |
| | | | Final Design | | Narrative describing method used to establish thermal comfort control conditions and how systems design addresses the design criteria, including compliance with the referenced standard. | | MEC |
| EQ7.2 | | Thermal Comfort: Verification | Final Design | | Narrative describing the scope of work for the thermal comfort survey, including corrective action plan development | | MEC |
| EQ8.1 | | Daylight & Views: Daylight 75% of Spaces | Final Design | | Option 1: Table indicating all regularly occupied spaces with space area and space area with 2% daylighting factor. Sum of regularly occupied areas and regularly occupied areas with 2% daylighting factor. Percentage calculation of areas with 2% daylighting factor to total regularly occupied areas. | | ARC |
| | | | Final Design | | Option 1: Glazing factor calculation table | | ARC |
| | | | Final Design | | Option 2: Simulation model method, software and output data | | ARC |
| | | | Final Design | | Option 2: Table indicating all regularly occupied spaces with space area, space area with minimum 25 footcandles daylighting illumination, and method of providing glare control. Sum of regularly occupied areas and regularly occupied areas with 25 fc daylighting. Percentage calculation of areas with 25 fc daylighting to total regularly occupied areas. | | ARC |
| | | | Final Design | | For all occupied spaces excluded from the calculation, provide narrative indicating reasons for excluding the space. | | ARC |
| | | | Final Design | | List of drawing and specification references that convey exterior glazed opening head and sill heights and glazing performance properties. | | ARC |
| | | | Closeout | X | Manufacturer published product data or certification confirming glazing Tvis in spreadsheet | | PE |
| EQ8.2 | | Daylight & Views: Views for 90% of Spaces | Final Design | | Table indicating all regularly occupied spaces with space area and space area with access to views. Sum of regularly occupied areas and regularly occupied areas with access to views. Percentage calculation of areas with views to total regularly occupied areas. | | ARC |
| | | | Final Design | | For all occupied spaces excluded from the calculation, provide narrative indicating reasons for excluding the space. | | ARC |
| | | | Final Design | | LEED Floor plan drawings showing line of sight diagramming of views areas in each regularly occupied space. List of drawing/specification references that convey exterior glazed opening head and sill heights. | | ARC |
| | | | | | | | |
| **CATEGORY 6 – FACILITY DELIVERY PROCESS** | | | | | | | |
| IDc1.1 | | Innovation in Design | Final Design OCT09REV | | Narrative decribing intent, requirement for credit, project approach to the credit. List of drawings and specification references that convey implementation of credit. All other documentation that validates claimed credit. | | |
| IDc1.2 | | Innovation in Design | Final Design OCT09REV | | | | |
| IDc1.3 | | Innovation in Design | Final Design OCT09REV | | | | |
| IDc1.4 | | Innovation in Design | Final Design OCT09REV | | | | |
| IDc2 | | LEED Accredited Professional | Final Design | | Narrative indicating name of LEED AP, company name of LEED AP, description of LEED AP's role and responsiblilities in the project. | | ARC |
| | | | | | | | |

**ATTACHMENT F**
Version 02-03-2010

**BUILDING INFORMATION MODELING REQUIREMENTS**

## 1.0 Section 1 - Submittal Format

1.1. Design Deliverables. Develop all designs using Building Information Modeling (BIM) and Computer Aided Design (CAD) software. Design submittal drawings shall be A1 size, suitable for half-size scaled reproduction.

## 2.0 Section 2 – Design Requirements

2.1. BIM Model and Facility Data. Contractor shall use BIM application(s) and software(s) to develop project designs. "Facility Data" is defined as associated intelligent attribute data. The "Model" is defined as 3D graphics that includes Facility Data and output as described in the paragraph 'Output' below. Contractors will use the Model to produce accurate Construction Documents. For each Center of Standardization (CoS) facility type included in this project, all BIM Models and associated Facility Data shall be submitted in Bentley Systems BIM 08.08.00.10 with associated USACE Bentley BIM Workspace (which includes specific standard BIM libraries and definitions). This Workspace can be downloaded from the CAD/BIM Technology Center. [Where available, the workspace will be specific to this CoS Facility Standard Design. The Contractor will be provided a baseline multi-discipline BIM Project Model for the CoS Facility Standard Design type, where such a model exists (for the purposes of site adaptation).] The USACE Bentley BIM Workspace is dependent on specific versions of the Bentley BIM suite of products and only the versions of the software that are listed in the Contractor instructions included with the USACE BIM Workspace are permitted to be used.

2.1.1. Reference. Refer to ERDC TR-06-10, "U.S. Army Corps of Engineers Building Information Modeling Road Map" from the CAD/BIM Technology Center website for more information on the USACE BIM implementation goals.

2.2. Drawings. Deliver CAD files used for the creation of the Construction Documents Drawings per requirements in Section 01 33 16, the criteria of the USACE Fort Worth District, and as noted herein. Specification of a CAD file format for these Drawings does not limit which BIM application(s) or software(s) may be used for project development and execution.

2.2.1. IFC Support. The Contractor's selected BIM application(s) and software(s) must support the IFC (Industry Foundation Class - see www.iai-tech.org). Submit any deviations from or additions to the IFC property sets for any new spaces, systems, and equipment for Government approval.

2.2.2. Submittal Requirements. BIM submittals shall be fully interoperable, compatible, and editable with the Bentley BIM tools. Use the specified version of the USACE Bentley BIM Workspace and conform to the requirements of **Sections 3 and 4 below**.

2.2.3. BIM Project Execution Plan.

2.2.3.1. Develop a BIM Project Execution Plan ("Plan" or "PxP") documenting the BIM and analysis technologies selected for the Project Model (integrated with the AEC CAD Standard) from concept development through As-Builts as a design, production, coordination, construction, and documentation tool and the collaborative process by which it shall be executed. See Section 7 for additional guidance on developing the Plan.

2.2.4. BIM Requirements..

2.2.4.1. Facility Data. Develop the Facility Data consisting of a set of intelligent elements for the Model (e.g., doors, air handlers, electrical panels). This Facility Data shall include all material definitions and attributes that are necessary for the Project facility design and construction. Additional data in support of Section 6 Contractor Electives is encouraged.

2.2.4.2. Model Content. The Model and Facility Data shall include, at a minimum, the requirements of Section 4 below.

2.2.4.3. Model Granularity. Models may vary in level of detail for individual elements within a model, but at a minimum must include all features that would be included on a quarter inch (1/4" = 1'0") scaled drawing (e.g. at least 1/16th, 1/8th and 1/4th), or appropriately scaled civil drawings.

2.2.4.4. Output. Submitted CAD drawings (e.g., plans, elevations, sections, schedules, details, etc.) shall be derived (commonly known as extractions, views or sheets) and maintained from the submitted Model and Facility Data.

2.3. Quality Control. Implement quality control (QC) parameters for the Model, including:

2.3.1. Model Standards Checks. QC validation used to ensure that the Project Facility Data set has no undefined, incorrectly defined or duplicated elements. Report non-compliant elements and corrective action plan to correct non-compliant elements. Provide the government with detailed justification and request government approval for any non-compliant element which the contractor proposes to be allowed to remain in the Model.

2.3.2. CAD Standards Checks. QC checking performed to ensure that the fonts, dimensions, line styles, levels and other construction document formatting issues are followed per the A/E/C CADD Standard.

2.3.3. Other Parameters. Develop such other QC parameters as Contractor deems appropriate for the Project and provide to the Government for concurrence.

2.4. Design and Construction Reviews. Perform design and construction reviews at each submittal stage under Section 3 to test the Model, including:

2.4.1. Visual Checks. Checking to ensure the design intent has been followed and that there are no unintended elements in the Model.

2.4.2. Interference Management Checks. Locate conflicting spatial data in the Model where two elements are occupying the same space. Log hard interferences (e.g., mechanical vs. structural or mechanical vs. mechanical overlaps in the same location) and soft interferences, (e.g., conflicts regarding equipment clearance, service access, fireproofing, insulation) in a written report and resolve.

2.4.3. IFC Coordination View. Provide an IFC Coordination View in IFC Express format for all deliverables. Provide exported property set data for all IFC supported named building elements.

2.4.4. Other Parameters. Develop such other Review parameters as the Contractor deems appropriate for the Project and provide to the Government for concurrence..

**3.0 Section 3 – Design Stage Submittal Requirements**

3.1. General Submittal Requirements.

3.1.1. Provide submittals in compliance with BIM Project Execution Plan deliverables at stages as described hereinafter.

3.1.2. At each Stage in Paragraphs 3.3 through 3.6, provide a Contractor-certified written report confirming that consistency checks as identified in Paragraphs 2.3 and 2.4 have been completed. This report shall be discussed as part of the review process and shall address cross-discipline interferences, if any.

3.1.3. At each Stage in Paragraphs 3.3 through 3.6, provide the Government with:

- The Model, Facility Data, Workspace and CAD Data files in native Bentley BIM/CAD.

- A 3-D interactive review format of the Model in Bentley Navigator, Autodesk Navisworks, Adobe 3D PDF 7.0 (or later), Google Earth KMZ or other format per Plan requirements. The file format for reviews can change between submittals.

- A list of all submitted files. The list should include a description, directory, and file name for each file submitted. For all CAD sheets, include the sheet title and sheet number. Identify files that have been produced from the submitted Model and Facility Data.

3.2. Initial Design Conference Submittal.

3.2.1. Submit a digital copy of the Plan where, in addition to Paragraph 3.1.4, the USACE Geographic District BIM Manager will coordinate with the USACE CoS BIM Manager to confirm acceptability of the Plan or advise as to additional processes or activities necessary to be incorporated.

3.2.2. Within thirty (30) days after the approval of the Plan, conduct a demonstration to review the Plan for clarification, and to verify the functionality of Model technology workflow and processes. If modifications are required, the Contractor shall complete the modifications and resubmit the Plan and perform subsequent demonstration for Government acceptance. There will be no payment for design or construction until the Plan is acceptable to the Government. The Government may also withhold payment for design and construction for unacceptable performance in executing the approved Plan.

3.3. Interim Design Submittals.

3.3.1. BIM and CAD Data. The Model shall include the requirements identified in Paragraph 2.2.4 as applicable to the Interim Design package(s).

3.4. Final Design Submissions and Design Complete Submittals.

3.4.1. BIM and CAD Data. The Model shall include the requirements identified in Paragraph 2.2.4. Acceptance according to Paragraph 3.1.4 is required before commencement of construction, as described in Paragraph 3.7.6 of Section 01 33 16.

3.5. Construction Submittals – Over-The-Shoulder Progress Reviews. Periodic quality control meetings or construction progress review meetings shall include quality control reviews on the implementation and use of the Model, including interference management and design change tracking information.

3.6. Final As-Builts BIM and CAD Data Submittal. Submit the final Model, Facility Data, and CAD files reflecting as-built conditions for Government Approval, as specified in Section 01 78 02.00 10, PROJECT CLOSEOUT.

**4.0 Section 4 – BIM Model Minimum Requirements and Output**

4.1. General Provisions. The deliverable Model shall be developed to include the systems described below as they would be built and the processes of installing them, and to reflect final as-built conditions. The deliverable model at the interim design stage and at the final design stage (“released for construction”) shall be developed to include as many of the systems described below as are necessary and appropriate at that design stage.

4.2. Architectural/Interior Design. The Architectural systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

4.2.1. Spaces. The Model shall include spaces defining accurate net square footage and net volume, and holding data for the room finish schedule for including room names and numbers. Include Programmatic Information provided by the Government or validated program to verify design space against programmed space, using this information to validate area quantities.

4.2.2. Walls and Curtain Walls. Each wall shall be depicted to the exact height, length, width and ratings (thermal, acoustic, fire) to properly reflect wall types. The Model shall include all walls, both interior and exterior, and the necessary intelligence to produce accurate plans, sections and elevations depicting these design elements.

4.2.3. Doors, Windows and Louvers. Doors, windows and louvers shall be depicted to represent their actual size, type and location. Doors and windows shall be modeled with the necessary intelligence to produce accurate window and door schedules.

4.2.4. Roof. The Model shall include the roof configuration, drainage system, penetrations, specialties, and the necessary intelligence to produce accurate plans, building sections and generic wall sections where roof design elements are depicted.

4.2.5. Floors. The floor slab shall be developed in the structural Model and then referenced by the architectural Model for each floor of the Project building.

4.2.6. Ceilings. All heights and other dimensions of ceilings, including soffits, ceiling materials, or other special conditions shall be depicted in the Model with the necessary intelligence to produce accurate plans, building sections and generic wall sections where ceiling design elements are depicted.

4.2.7. Vertical Circulation. All continuous vertical components (i.e., non-structural shafts, architectural stairs, handrails and guardrails) shall be accurately depicted and shall include the necessary intelligence to produce accurate plans, elevations and sections in which such design elements are referenced.

4.2.8. Architectural Specialties and Woodwork. All architectural specialties (i.e., toilet room accessories, toilet partitions, grab bars, lockers, and display cases) and woodwork (i.e., cabinetry and counters) shall be accurately depicted with the necessary intelligence to produce accurate plans, elevations and sections in which such design elements are referenced.

4.2.9. Signage. The Model shall include all signage and the necessary intelligence to produce accurate plans and schedules.

4.2.10. Schedules. Provide door, window, hardware sets using BHMA designations, flooring, wall finish, and signage schedules from the Model, indicating the type, materials and finishes used in the design.

4.3. Furniture. The furniture systems Model may vary in level of detail for individual elements within a Model, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing, and have necessary intelligence to produce accurate plans. Representation of furniture elements is to be 2D. Contractor may provide a minimal number of 3D representations as examples. Examples of furniture include, but are not limited to, desks, furniture systems, seating, tables, and office storage.

4.3.1. Furniture Coordination. Furniture that makes use of electrical, data or other features shall include the necessary intelligence to produce coordinated documents and data.

4.4. Equipment. The Model may vary in level of detail for individual elements within a Model. Equipment shall be depicted to meet layout requirements with the necessary intelligence to produce accurate plans and minimum schedules depicting their configuration. Examples of equipment include but are not limited to copiers, printers, refrigerators, ice machines and microwaves.

4.4.1. Schedules. Provide furniture and equipment schedules from the model indicating the materials, finishes, mechanical, and electrical requirements.

4.5. Structural. The structural systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

4.5.1. Foundations. All necessary foundation and/or footing elements, with necessary intelligence to produce accurate plans and elevations

4.5.2. Floor Slabs. Structural floor slabs shall be depicted, including all necessary recesses, curbs, pads, closure pours, and major penetrations accurately depicted.

4.5.3. Structural Steel. All steel columns, primary and secondary framing members, and steel bracing for the roof and floor systems (including decks), including all necessary intelligence to produce accurate structural steel framing plans and related building/wall sections.

4.5.4. Cast-in-Place Concrete. All walls, columns, and beams, including necessary intelligence to produce accurate plans and building/wall sections depicting cast-in-place concrete elements.

4.5.5. Expansion/Contraction Joints. Joints shall be accurately depicted.

4.5.6. Stairs. The structural Model shall include all necessary openings and framing members for stair systems, including necessary intelligence to produce accurate plans and building/wall sections depicting stair design elements.

4.5.7. Shafts and Pits. The structural Model shall include all necessary shafts, pits, and openings, including necessary intelligence to produce accurate plans and building/wall sections depicting these design elements.

4.6. Mechanical. The mechanical systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4"=1'0") scaled drawing. Small diameter (less than 1-1/2" NPS) field-routed piping is not required in the model. Additional minimum Model requirements include:

4.6.1. HVAC. All necessary heating, ventilating, air-conditioning and specialty equipment, including air distribution ducts for supply, return, and ventilation and exhaust ducts, including control system, registers, diffusers, grills and hydronic baseboards with necessary intelligence to produce accurate plans, elevations, building/wall sections and schedules.

4.6.1.1. Mechanical Piping. All necessary piping and fixture layouts, and related equipment, including necessary intelligence to produce accurate plans, elevations, building/wall sections, and schedules.

4.6.2. Plumbing. All necessary plumbing piping and fixture layouts, floor and area drains, and related equipment, including necessary intelligence to produce accurate plans, elevations, building/wall sections, riser diagrams, and schedules.

4.6.3. Equipment Clearances. All HVAC and Plumbing equipment clearances shall be modeled for use in interference management and maintenance access requirements.

4.6.4. Elevator Equipment. The Model shall include the necessary equipment and control system, including necessary intelligence to produce accurate plans, sections and elevations depicting these design elements.

4.7. Electrical/Telecommunications. The electrical systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4"=1'0") scaled drawing. Small diameter (less than 1-1/2"Ø) field-routed conduit is not required in the model. Additional minimum Model requirements include:

4.7.1. Interior Electrical Power and Lighting. All necessary interior electrical components (i.e., lighting, receptacles, special and general purpose power receptacles, lighting fixtures, panelboards, cable trays and control systems), including necessary intelligence to produce accurate plans, details and schedules. Lighting and power built into furniture/equipment shall be modeled.

4.7.2. Special Electrical Systems. All necessary special electrical components (i.e., security, Mass Notification, Public Address, nurse call and other special occupancies, and control systems), including necessary intelligence to produce accurate plans, details and schedules.

4.7.3. Grounding Systems. Grounding Systems. All necessary grounding components (i.e., lightning protection systems, static grounding systems, communications grounding systems, bonding), including necessary intelligence to produce accurate plans, details and schedules.

4.7.4. Communications. All existing and new communications service controls and connections, both above ground and underground with necessary intelligence to produce accurate plans, details and schedules. Cable tray routing shall be modeled without detail of cable contents.

4.7.5. Exterior Building Lighting. All necessary exterior lighting with necessary intelligence to produce accurate plans, elevations and schedules. The exterior building lighting Model shall include all necessary lighting, relevant existing and proposed support utility lines and equipment required with necessary intelligence to produce accurate plans, details and schedules.

4.7.6. Equipment Clearances. The model shall incorporate and define all electrical and communications working spaces, clearances, and required access

4.8. Fire Protection. The fire protection system Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

4.8.1. Fire Protection System. All relevant fire protection components (i.e., branch piping, sprinkler heads, fittings, drains, pumps, tanks, sensors, control panels) with necessary intelligence to produce accurate plans, elevations, building/wall sections, riser diagrams, and schedules. All fire protection piping shall be modeled.

4.8.2. Fire Alarms. Fire alarm/mass notification devices and detection system shall be indicated with necessary intelligence to produce accurate plans depicting them.

4.9. Civil. The civil Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a one inch (1”=100’) scaled drawing. Additional minimum Model requirements include:

4.9.1. Terrain (DTM). All relevant site conditions and proposed grading, including necessary intelligence to produce accurate Project site topographical plans and cross sections.

4.9.2. Drainage. All existing and new drainage piping, including upgrades thereto, including necessary intelligence to produce accurate plans and profiles for the Project site.

4.9.3. Storm Water and Sanitary Sewers. All existing and new sewer structures and piping, including upgrades thereto, on the Project site with necessary connections to mains or other distribution points as appropriate, including necessary intelligence to produce accurate plans and profiles for the Project site.

4.9.4. Utilities. All necessary new utilities connections from the Project building(s) to the existing or newly-created utilities, and all existing above ground and underground utility conduits, including necessary intelligence to produce accurate plans and site-sections.

4.9.5. Roads and Parking. All necessary roadways and parking lots or parking structures, including necessary intelligence to produce accurate plans, profiles and cross-sections.

## 5.0 Section 5 - Ownership and Rights in Data

5.1. Ownership. The Government has ownership of and rights at the date of Closeout Submittal to all CAD files, BIM Model, and Facility Data developed for the Project in accordance with FAR Part 27, clauses incorporated in Section 00 72 00, Contract Clauses and Special Contract Requirement 1.14 GOVERNMENT RE-USE OF DESIGN (Section 00 73 00). The Government may make use of this data following any deliverable.

## 6.0 Section 6 – Contractor Electives

6.1. Applicable Criteria. If the Contractor elected to include one or more of the following features as an elective in its accepted contract proposal for additional credit during the source selection, as described in the proposal submission requirements and evaluation criteria, the following criteria are requirements, as applicable to those elective feature(s).

6.2. COBIE Compliance. The Model and Facility Data for the Project shall fulfill Construction Operations Building Information Exchange (COBIE) requirements as defined by the Whole Building Design Guide organization, including all requirements for the indexing and submission of Portable Document Format (PDF) and other appropriate file formats that would otherwise be printed and submitted in compliance with Project operations and maintenance handover requirements.

6.3. Project Scheduling using the Model. In the BIM Execution Plan and during the Preliminary BIM Execution Plan Review, provide an overview of the use of BIM in the development and support of the project construction schedule.

6.3.1. Submittal Requirements. During the Submittal stages, the Contractor shall deliver the construction schedule with information derived from the Model.

6.3.1.1. Construction Submittals – Over-The-Shoulder Progress Reviews. Periodic quality control meetings or construction progress review meetings shall include quality control reviews on the implementation and use of the Model for project scheduling.

6.4. Cost Estimating. In the BIM Execution Plan and during the Preliminary BIM Execution Plan Review, provide an overview of the use of BIM in the development and support of cost estimating requirements, or other applications such as cost analysis and estimate validation.

6.4.1. Submittal Requirements. During the Submittal stages, the Contractor shall deliver cost estimating information derived from the Model.

6.4.2. Project completion. At project completion, the Contractor shall provide an MII (Micro Computer Aided Cost Estimating System Generation II) Cost Estimate which follows the USACE Cost Engineering Military Work Breakdown System (WBS), a modified Uniformat, to at least the sub-systems level and uses quantity information supplied directly from BIM output to the maximum extent possible, though other "Gap" quantity information will be included as necessary for a complete and accurate cost estimate.

6.4.2.1. Sub system level extracted quantities from the BIM for use within the estimate shall be provided according to how detailed line items or tasks should be installed/built so that accurate costs can be developed and/or reflected. Therefore, when developing a BIM, the designer shall be cognizant of what tasks need to be separated appropriately at the beginning stages of model development, such as tasks done on the first floor versus the same task on higher floors that will be more labor intensive and therefore need to have a separate quantity and be priced differently. Tasks and their extracted quantities from the BIM shall be broken done by their location (proximity in the structure) as well as the complexity of its installation.

6.4.2.2. At all design stages it shall be understood that BIM output as described in this document will not generate all quantities that are necessary in order to develop a complete and accurate cost estimate of the project based on the design. An example of this would be plumbing that is less than 1.5" diameter and therefore not expected to be modeled due to granularity; this information is commonly referred to as The Gap. Quantities from The Gap and their associated costs shall be included in the final project actual cost estimates as well.

6.5. Other Analyses and Reports. Structural, energy and efficiency, EPACT 2005 & EISA 2007, lighting design, daylighting, electrical power, psychrometric processing, shading, programming, LEED, fire protection, code compliance, Life Cycle Cost, acoustic, plumbing.

## 7.0 Section 7 – BIM Project Execution Plan Template

7.1. Contractors will utilize the latest version of the USACE BIM PROJECT EXECUTION PLAN (USACE PxP) Template to develop an acceptable Plan. The template can be downloaded from the CAD/BIM Technology Center website.

**ATTACHMENT G**
**DESIGN SUBMITTAL DIRECTORY AND SUBDIRECTORY FILE ARRANGEMENT**

Organize electronic design submittal files in a subdirectory/file structure in accordance with the following table. The Contractor may suggest a slightly different structure, subject to the discretion of the government.

**Design Submittal Directory and Subdirectory File Arrangement.**

| Directory | Sub-Directory | Sub-Directory or Files | Files |
|---|---|---|---|
| Submittal/Package Name | Narratives | PDF file or files with updated design narrative for each applicable design discipline | |
| | Drawings | PDF (subdirectory) | Single PDF file with all applicable drawing sheets - bookmarked by sheet number and name |
| | | BIM (subdirectory) See Attachment F. | BIM project folder (with files) per the USACE Workspace. Include an Excel drawing index file with each drawing sheet listed by sheet #, name and corresponding dgn file name (Final Design & Design Complete only) |
| | Design Analysis & Calculations | Individual PDF files containing design analysis and calculations for each discipline applicable to the submittal | |
| | | PDF file with Fire Protection and Life Safety Code Review checklist | |
| | LEED | PDF file with updated Leed Check List | |
| | | PDF file or files with LEED Templates for each point with applicable documentation included in each file. | |
| | | LEED SUBMITTALS | |
| | Energy Analysis | PDF with baseline energy consumption analysis | |
| | | PDF with actual building energy consumption analysis | |
| | Specifications | Single PDF file with table of contents and all applicable specifications sections. | |
| | | Submittal Register (Final Design & Design Complete submittal only) | |
| | Design Quality Control | PDF file or files with DQC checklist(s) and/or statements | |
| | Building Rendering(s) | PDF file of rendering for each building type included in contract (Final Design & Design Complete). | |

**SECTION 01 45 01.10**
REV 3.0 - 30 JUN 2007

**QUALITY CONTROL SYSTEM (QCS)**

**1.0 GENERAL**

1.1. CORRESPONDENCE AND ELECTRONIC COMMUNICATIONS

1.2. QCS SOFTWARE

1.3. SYSTEM REQUIREMENTS

1.4. RELATED INFORMATION

1.5. CONTRACT DATABASE

1.6. DATABASE MAINTENANCE

1.7. IMPLEMENTATION

1.8. DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

1.9. MONTHLY COORDINATION MEETING

1.10. NOTIFICATION OF NONCOMPLIANCE

## 1.0 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. The Contractor module, user manuals, updates, and training information can be downloaded from the RMS web site. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data
- Request for Information
- Accident Reporting
- Safety Exposure Manhours

### 1.1. CORRESPONDENCE AND ELECTRONIC COMMUNICATIONS

For ease and speed of communications, both Government and Contractor will exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

### 1.2. OTHER FACTORS

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01 32 01.00 10, PROJECT SCHEDULE, Section 01 33 00, SUBMITTAL PROCEDURES, and Section 01 45 04.00 10, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS. Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

### 1.3. QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

### 1.4. SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

(a) Hardware

- IBM-compatible PC with 1000 MHz Pentium or higher processor
- 256 MB RAM for workstation / 512+ MB RAM for server
- 1 GB hard drive disk space for sole use by the QCS system
- Compact disk (CD) Reader, 8x speed or higher
- SVGA or higher resolution monitor (1024 x 768, 256 colors)
- Mouse or other pointing devise
- Windows compatible printer (Laser printer must have 4+ MB of RAM)
- Connection to the Internet, minimum 56K BPS

(b) Software

- MS Windows 2000 or higher
- MS Word 2000 or newer
- Latest version of : Netscape Navigator, Microsoft Internet Explorer, or other browser that supports HTML 4.0 or higher
- Electronic mail (E-mail), MAPI compatible
- Virus protection software that is regularly upgraded with all issued manufacturer's updates

1.5. RELATED INFORMATION

1.5.1. QCS USER GUIDE

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

1.5.2. CONTRACTOR QUALITY CONTROL (CQC) TRAINING

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

1.6. CONTRACT DATABASE

Prior to the pre-construction conference, the Government will provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by using the government's SFTP repository built into QCS import/export function. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

1.7. DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government, e.g., daily reports, submittals, RFI's, schedule updates, payment requests, etc. shall be submitted using the government's SFTP repository built into QCS export function. If permitted by the Contracting Officer, email or CD-ROM may be used instead (see Paragraph DATA SUBMISSION VIA CD-ROM). The QCS database typically shall include current data on the following items:

1.7.1. ADMINISTRATION

1.7.1.1. Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format.

1.7.1.2. Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format.

1.7.1.3. Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main)

office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

All Requests For Information (RFI) shall be exchanged using the Built-in RFI generator and tracker in QCS.

1.7.1.4. Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

1.7.1.5. Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

1.7.2. FINANCES

1.7.2.1. Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the design and construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

1.7.2.2. Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet prompt payment certification, and payment invoice in QCS. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment request, prompt payment certification, and payment invoice with supporting data by using the government's SFTP repository built into QCS export function. If permitted by the Contracting Officer, E-mail or a CD-ROM may be used. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

1.7.3. Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01 45 04.00 10, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a QCS update reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

1.7.3.1. Daily Contractor Quality Control (CQC) Reports

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01 45 04.00 10, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government within 24 hours after the date covered by the report. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

1.7.3.2. Deficiency Tracking

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

1.7.3.3. QC Requirements

The Contractor shall develop and maintain a complete list of QC testing and required structural and life safety special inspections required by the International Code Council (ICC), transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

1.7.3.4. Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

1.7.3.5. Labor and Equipment Hours

The Contractor shall log labor and equipment exposure hours on a daily basis. This data will be rolled up into a monthly exposure report.

1.7.3.6. Accident/Safety Tracking Reporting

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This supplemental entry is not to be considered as a substitute for completion of mandatory notification and reports, e.g., ENG Form 3394 and OSHA Form 300.

1.7.3.7. Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

1.7.3.8. Hazard Analysis

The Contractor shall use QCS to develop a hazard analysis for each feature of work included in its CQC Plan. The hazard analysis shall address any hazards, or potential hazards, that may be associated with the work

1.7.4. Submittal Management

The Government will provide the submittal register form, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. The Contractor and Designer of Record (DOR) shall develop and maintain a complete list of all submittals, including completion of all data columns and shall manage all submittals. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. QCS and RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

1.7.5. Schedule

The Contractor shall develop a design and construction schedule consisting of pay activities, in accordance with Section 01 32 01.00 10, PROJECT SCHEDULE, as applicable. This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01 32 01.00 10 PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.

1.7.5.1. Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data from RMS, and schedule data using SDEF.

1.8. IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

1.9. DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of QCS data is by using the government's SFTP repository built into QCS export function.. Other data should be submitted using E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of CD-ROM for data transfer. Data on CDs shall be exported using the QCS built-in export function. If used, CD-ROMs will be submitted in accordance with the following:

1.9.1. File Medium

The Contractor shall submit required data on CD-ROMs. They shall conform to industry standards used in the United States. All data shall be provided in English.

1.9.2. Disk Or Cd-Rom Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

1.9.3. File Names

The files will be automatically named by the QCS software. The naming convention established by the QCS software shall not be altered in any way by the Contractor.

1.10. MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions.

The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

1.11. NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

End of Section 01 45 01.10

**SECTION 01 45 04.00 10**
REV 2.10 – 31 DEC 2009

**CONTRACTOR QUALITY CONTROL**

**1.0 GENERAL**

1.1. REFERENCES

1.2. PAYMENT

**2.0 PRODUCTS (NOT APPLICABLE)**

**3.0 EXECUTION**

3.1. GENERAL REQUIREMENTS

3.2. QUALITY CONTROL PLAN

3.3. COORDINATION MEETING

3.4. QUALITY CONTROL ORGANIZATION

3.5. SUBMITTALS AND DELIVERABLES

3.6. CONTROL

3.7. TESTS

3.8. COMPLETION INSPECTION

3.9. DOCUMENTATION

3.10. NOTIFICATION OF NONCOMPLIANCE

## 1.0 GENERAL

### 1.1. REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. Refer to the latest edition, as of the date of the contract solicitation.

- ASTM INTERNATIONAL (ASTM)
- ASTM D 3740 Minimum Requirements for Agencies

  Engaged in the Testing and/or Inspection
  of Soil and Rock as Used in Engineering
  Design and Construction
- ASTM E 329 Agencies Engaged in the Testing

  and/or Inspection of Materials Used in
  Construction
- U.S. ARMY CORPS OF ENGINEERS (USACE)

  ER 1110-1-12 Quality Management

### 1.2. PAYMENT

There will be no separate payment for providing and maintaining an effective Quality Control program. Include all costs associated therewith in the applicable unit prices or lump-sum prices contained in the Contract Line Item Schedule.

## 2.0 PRODUCTS (Not Applicable)

## 3.0 EXECUTION

### 3.1. GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product, which complies with the contract requirements. The system shall cover all design and construction operations, both onsite and offsite, and shall be keyed to the proposed design and construction sequence. The site project superintendent is responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

### 3.2. QUALITY CONTROL PLAN

Furnish for Government review, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Design and construction may begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. The Government will not permit work outside of the features of work included in an accepted interim plan to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started. Where the applicable Code issued by the International Code Council calls for an inspection by the Building Official, the Contractor shall include the inspections in the Quality Control Plan and shall perform the inspections. The Designer of Record shall develop a program for any special inspections required by the applicable International Codes and the Contractor shall perform these inspections, using qualified inspectors. Include the special inspection plan in the QC Plan.

3.2.1. Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all design and construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents subcontractors, designers of record, consultants, architect/engineers (AE), fabricators, suppliers, and purchasing agents:

3.2.1.1. A description of the quality control organization. Include a chart showing lines of authority and an acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. A CQC System Manager shall report to the project superintendent or someone higher in the contractor's organization.

3.2.1.2. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function. Also include those responsible for performing and documenting the inspections required by the International Codes and the special inspection program developed by the designer of record.

3.2.1.3. A copy of the letter to the CQC System Manager, signed by an authorized official of the firm, which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Furnish copies of these letters.

3.2.1.4. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents subcontractors, designers of record, consultants, architect engineers (AE), offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

3.2.1.5. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Use only Government approved Laboratory facilities.

3.2.1.6. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

3.2.1.7. Procedures for tracking design and construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

3.2.1.8. Reporting procedures, including proposed reporting formats.

3.2.1.9. A list of the definable features of work. A definable feature of work is a task, which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

3.2.1.10. A list of all inspections required by the International Codes and the special inspection program required by the code and this contract.

3.2.2. Additional Requirements for Design Quality Control (DQC) Plan

The following additional requirements apply to the Design Quality Control (DQC) plan:

3.2.2.1. The Contractor's QCP Plan shall provide and maintain a Design Quality Control (DQC) Plan as an effective quality control program which will assure that all services required by this design-build contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, competent, independent reviewers identified in the DQC Plan shall review all documents. Use personnel who were not involved in the design effort to produce the design to perform the independent technical review (ITR). The ITR is intended as a quality control check of the design. Include, at least, but not necessarily limited to, a review of the contract requirements (the accepted contract or task order proposal and amended RFP), the basis of design, design calculations, the design configuration management documentation and check the design documents for

errors, omissions, and for coordination and design integration. The ITR team is not required to examine, compare or comment concerning alternate design solutions but should concentrate on ensuring that the design meets the contract requirements. Correct errors and deficiencies in the design documents prior to submitting them to the Government.

3.2.2.2. Include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. Submit these completed checklists at each design phase as part of the project documentation.

3.2.2.3. A Design Quality Control Manager, who has the responsibility of being cognizant of and assuring that all documents on the project have been coordinated, shall implement the DQC Plan This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. Notify the Government, in writing, of the name of the individual, and the name of an alternate person assigned to the position.

3.2.3. Acceptance of Plan

Government acceptance of the Contractor's plan is required prior to the start of design and construction. Acceptance is conditional and will be predicated on satisfactory performance during the design and construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4. Notification of Changes

After acceptance of the CQC Plan, notify the Government in writing of any proposed change. Proposed changes are subject to Government acceptance.

3.3. COORDINATION MEETING

After the Postaward Conference, before start of design or construction, and prior to acceptance by the Government of the CQC Plan, the Contractor and the Government shall meet and discuss the Contractor's quality control system. Submit the CQC Plan for review a minimum of 7 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. The Government will prepare minutes of the meeting for signature by both parties. . The minutes shall become a part of the contract file. There may be occasions when either party will call for subsequent conferences to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4. QUALITY CONTROL ORGANIZATION

3.4.1. Personnel Requirements

The requirements for the CQC organization are a CQC System Manager, a Design Quality Manager, and sufficient number of additional qualified personnel to ensure safety and contract compliance. The CQC System Manager shall provide direction and authority to the Safety and Health Manager, who shall serve as a member of the CQC staff. The CQC System Manager, if qualified and if allowed by Section 00 73 00 may serve as the Safety and Health Manager or it may be a separate position. The CQC organization shall also include personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. Provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Promptly furnish complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation to the CQC organization. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2. CQC System Manager

Identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a BA/BS graduate of an ACCE accredited construction management college program. The CQC system Manager may alternately be an engineering technician with at least 2 years of college and an ICC certification as a Commercial Building Inspector (Residential Building Inspector certification will be required for Military Family Housing projects). In addition, the CQC system manager shall have a minimum of 5 years construction experience on construction similar to this contract. The CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. Assign the CQC System Manager no other duties (except may also serve as Safety and Health Manager, if qualified and if allowed by Section 00 73 00). Identify an alternate for the CQC System Manager in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager but the alternate may have other duties in addition to serving in a temporary capacity as the acting QC manager.

3.4.3. CQC Personnel

3.4.3.1. In addition to CQC personnel specified elsewhere in the contract provide specialized CQC personnel to assist the CQC System Manager in accordance with paragraph titled Area Qualifications.

3.4.3.2. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; **are not intended to be full time, but must be physically present at the construction site during work on their areas of responsibility**; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan. **One person may cover more than one area, provided that they are qualified to perform QC activities for the designated areas below and provided that they have adequate time to perform their duties:**

3.4.4. Experience Matrix

3.4.4.1. Area Qualifications

3.4.4.1.1. Civil - Graduate Civil Engineer or (BA/BS) graduate in construction management with 4 years experience in the type of work being performed on this project or engineering technician with 5 yrs related experience.

3.4.4.1.2. Mechanical - Graduate Mechanical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or engineering technician with an ICC certification as a Commercial Mechanical Inspector with 5 yrs related experience.

3.4.4.1.3. Electrical - Graduate Electrical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or engineering technician with an ICC certification as a Commercial Electrical Inspector with 5 yrs related experience.

3.4.4.1.4. Structural - Graduate Structural Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or person with an ICC certification as a Reinforced Concrete Special Inspector and Structural Steel and Bolting Special Inspector (as applicable to the type of construction involved) with 5 yrs related experience.

3.4.4.1.5. Plumbing - Graduate Mechanical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience, or person with an ICC certification as a Commercial Plumbing Inspector with 5 yrs related experience.

3.4.4.1.6. Concrete, Pavements and Soils Materials Technician (present while performing tests) with 2 yrs experience for the appropriate area

3.4.4.1.7. Testing, Adjusting and Balancing Specialist must be a member (TAB) Personnel of AABC or an experienced technician of the firm certified by the NEBB (present while testing, adjusting, balancing).

3.4.4.1.8. Design Quality Control Manager Registered Architect or Professional Engineer (not required on the construction site)

3.4.4.1.9. Registered Fire Protection Engineer with 4 years related experience or engineering technician with 5 yrs related experience (but see requirements for Fire Protection Engineer of Record to witness final testing in Section 01 10 00, paragraph 5.10, Fire Protection).

3.4.4.1.10. QC personnel assigned to the installation of ~~this~~ the telecommunication system or any of its components shall be Building Industry Consulting Services International (BICSI) Registered Cabling Installers, Technician Level. Submit documentation of current BICSI certification. In lieu of BICSI certification, QC personnel shall have a minimum of 5 years experience in the installation of the specified copper and fiber optic cable and components. They shall have factory or factory approved certification from each equipment manufacturer indicating that they are qualified to install and test the provided products. QC personnel shall witness and certify the testing of telecommunications cabling and equipment.

3.4.5. Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management for Contractors". This course is periodically offered at Associated Builders and Constructors, Inc.. Inquire of the District or Division sponsoring the course for fees and other expenses involved, if any, for attendance at this course.

3.4.6. Organizational Changes

When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5. SUBMITTALS AND DELIVERABLES

Make submittals as specified in Section 01 33 00 ***SUBMITTAL PROCEDURES***. The CQC organization shall certify that all submittals and deliverables are in compliance with the contract requirements.

3.6. CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. The CQC organization shall conduct at least three phases of control for each definable feature of the construction work as follows:

3.6.1. Preparatory Phase

Perform this phase prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

3.6.1.1. A review of each paragraph of applicable specifications, reference codes, and standards. Make a copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field at the preparatory inspection. Maintain these copies in the field, available for use by Government personnel until final acceptance of the work.

3.6.1.2. A review of the contract drawings.

3.6.1.3. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

3.6.1.4. Review of provisions that have been made to provide required control inspection and testing.

3.6.1.5. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

3.6.1.6. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

3.6.1.7. A review of the appropriate activity hazard analysis to assure safety requirements are met.

3.6.1.8. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

3.6.1.9. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

3.6.1.10. Discussion of the initial control phase.

3.6.1.11. Notify the Government at least 24 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. Document the results of the preparatory phase actions by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2. Initial Phase

Accomplish this phase at the beginning of a definable feature of work. Include the following actions:

3.6.2.1. Check work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

3.6.2.2. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

3.6.2.3. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

3.6.2.4. Resolve all differences.

3.6.2.5. Check safety to include compliance with and upgrading of the Accident Prevention plan and activity hazard analysis. Review the activity analysis with each worker.

3.6.2.6. Notify the Government at least 24 hours in advance of beginning the initial phase. The CQC System Manager shall prepare and attach to the daily CQC report separate minutes of this phase. Indicate exact location of initial phase for future reference and comparison with follow-up phases.

3.6.2.7. Repeat the initial phase any time acceptable specified quality standards are not being met.

3.6.3. Follow-up Phase

Perform daily checks to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Conduct final follow-up checks and correct deficiencies prior to the start of additional features of work which may be affected by the deficient work. Do not build upon nor conceal non-conforming work.

3.6.4. Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7. TESTS

3.7.1. Testing Procedure

Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements and project design documents. Upon request, furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory, or establish an approved testing laboratory at the project site. The Contractor may elect to use a laboratory certified and accredited by the Concrete and cement Reference Laboratory (CCRL) or by AASHTO Materials Reference Laboratory (AMRL) for testing procedures that those organizations certify. The Contractor shall perform the following activities and record and provide the following data:

3.7.1.1. Verify that testing procedures comply with contract requirements and project design documents.

3.7.1.2. Verify that facilities and testing equipment are available and comply with testing standards.

3.7.1.3. Check test instrument calibration data against certified standards.

3.7.1.4. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

3.7.1.5. Include results of all tests taken, both passing and failing tests, recorded on the CQC report for the date taken. Include specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. Provide an information copy of tests performed by an offsite or commercial test facility directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2. Testing Laboratories

3.7.2.1. Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2. Capability Recheck

If the selected laboratory fails the capability check, the Government will assess the Contractor a charge of $1,375 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3. Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4. Furnishing or Transportation of Samples for Testing

The Contractor is responsible for costs incidental to the transportation of samples or materials. Deliver samples of materials for test verification and acceptance testing by the Government to the Corps of Engineers Laboratory, f.o.b., at the following address:

- For delivery by mail:

  Commander and Director/ Engineer Research and Deve

  CEERD-GG-S

  3909 Halls Ferry Road, Waterways Experience Statio

  Vicksburg, MS 39180-6199

- For other deliveries:

  N/A

  N/A

  N/A

  N/A

The area or resident office will coordinate, exact delivery location, and dates for each specific test.

3.8. COMPLETION INSPECTION

3.8.1. Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the SPECIAL CONTRACT REQUIREMENTS Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. Prepare a punch list of items which do not conform to the approved drawings and specifications and include in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2. Pre-Final Inspection

As soon as practicable after the notification above, the Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Correct any items noted on the Pre-Final inspection in a timely manner. Accomplish these inspections and any deficiency corrections required by this paragraph within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3. Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall attend the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups and major commands may also attend. The Government will formally schedule the final acceptance inspection based upon results of the Pre-Final inspection. Provide notice to the Government at least 14 days prior to the final acceptance inspection and include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9. DOCUMENTATION

3.9.1. Maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers using government-provided software, QCS (see Section 01 45 01.10). The report includes, as a minimum, the following information:

3.9.1.1. Contractor/subcontractor and their area of responsibility.

3.9.1.2. Operating plant/equipment with hours worked, idle, or down for repair.

3.9.1.3. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

3.9.1.4. Test and/or control activities performed with results and references to specifications/drawings requirements. Identify the applicable control phase (Preparatory, Initial, Follow-up). List deficiencies noted, along with corrective action.

3.9.1.5. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

3.9.1.6. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

3.9.1.7. Offsite surveillance activities, including actions taken.

3.9.1.8. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

3.9.1.9. Instructions given/received and conflicts in plans and/or specifications.

3.9.1.10. Provide documentation of design quality control activities. For independent design reviews, provide, as a minimum, identity of the ITR team, the ITR review comments, responses and the record of resolution of the comments.

3.9.2. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. Furnish the original and one copy of these records in report form to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, submit one report for every 7 days of no work and on the last day of a no work period. Account for all calendar days throughout the life of the contract. The first report following a day of no work shall be for that day only. The CQC System Manager shall sign and date reports. The report shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel. The Contractor may submit these forms electronically, in lieu of hard copy.

3.10. NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

End of Section 01 45 04.00 10

**SECTION 01 50 02**
REV 2.4 - 30 APR 2009

**TEMPORARY CONSTRUCTION FACILITIES**

**1.0 OVERVIEW**

1.1. GENERAL REQUIREMENTS

1.2. AVAILABILITY AND USE OF UTILITY SERVICES

1.3. BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.4. PROTECTION AND MAINTENANCE OF TRAFFIC

1.5. MAINTENANCE OF CONSTRUCTION SITE

1.6. GOVERNMENT FIELD OFFICE

## 1.0 OVERVIEW

### 1.1. GENERAL REQUIREMENTS

#### 1.1.1. Site Plan

Prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Also indicate if the use of a supplemental or other staging area is desired.

### 1.2. AVAILABILITY AND USE OF UTILITY SERVICES

#### 1.2.1. See Section 00 73 00, Special Contract Requirements, for Utility Availability requirements.

#### 1.2.2. Sanitation

Provide and maintain within the construction area minimum field-type sanitary facilities approved by the Contracting Officer. Government toilet facilities will not be available to Contractor's personnel.

#### 1.2.3. Telephone

Make arrangements and pay all costs for desired telephone facilities.

### 1.3. BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

#### 1.3.1. Bulletin Board

Immediately upon beginning of onsite work, provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. Locate the bulletin board at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer. Display legible copies of the aforementioned data until work is completed. Remove the bulletin board from the site upon completion of the project.

#### 1.3.2. Project and Safety Signs

Erect a project sign and a site safety sign with informational details as provided by the Government at the Post award conference, within 15 days prior to any work activity on project site. Update the safety sign data daily, with light colored metallic or non-metallic numerals. Remove the signs from the site upon completion of the project. Engineer Pamphlet EP 310-1-6a contains the standardized layout and construction details for the signs. It can be found through a GOOGLE Search or try http://www.usace.army.mil/publications/eng-pamphlets/ep310-1-6a/s-16.pdf.

### 1.4. PROTECTION AND MAINTENANCE OF TRAFFIC

Provide access and temporary relocated roads as necessary to maintain traffic. Maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Take measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, as required by the State and local authorities having jurisdiction. Protect the traveling public from damage to person and property.

The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. Investigate the adequacy of existing roads and the allowable load limit on these roads. Repair any damage to roads caused by construction operations.

#### 1.4.1. Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Construct haul roads with suitable grades and widths. Avoid sharp curves, blind corners, and dangerous cross traffic. Provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Provide adequate lighting to assure full and clear visibility for full width of haul road and work areas during any night work operations. Remove haul roads designated by the Contracting Officer upon completion of the work and restore those areas.

1.4.2. Barricades

Erect and maintain temporary barricades to limit public access to hazardous areas. Barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.5. MAINTENANCE OF CONSTRUCTION SITE

Mow grass and vegetation located within the boundaries of the construction site for the duration of the project, from NTP to contract completion. Edge or neatly trim grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers from NTP to contract completion.

1.6. GOVERNMENT FIELD OFFICE

1.6.1. Resident Engineer's Office

Provide the Government Resident Engineer with an office, approximately 200 square feet in floor area, co-located on the project site with the Contractor's office and providing space heat, air conditioning, electric light and power, power and communications outlets and toilet facilities consisting of one lavatory and one water closet complete with connections to water and sewer mains . Provide a mail slot in the door or a lockable mail box mounted on the surface of the door. Provide outlets for 2 government phones and same number of LAN connections for Government computers. Coordinate with the Resident Engineer for locations. Provide a conference room with space large enough for 3 personnel to hold meetings. Provide a minimum of two outlets per government work station and at least one outlet per 10 feet of wall space for other government equipment. Provide at least twice weekly janitorial service. Remove the office facilities upon completion of the work and restore those areas. Connect and disconnect utilities in accordance with local codes and to the satisfaction of the Contracting Officer.

1.6.2. Trailer-Type Mobile Office

The Contractor may, at its option, furnish and maintain a trailer-type mobile office acceptable to the Contracting Officer and providing as a minimum the facilities specified above. Securely anchor the trailer to the ground at all four corners to guard against movement during high winds, per EM 385-1-1.

End of Section 01 50 02

**SECTION 01 57 20.00 10**
REV 3.1 – 28 FEB 2010

**ENVIRONMENTAL PROTECTION**

**1.0 GENERAL REQUIREMENTS**

1.1. SUBCONTRACTORS

1.2. ENVIRONMENTAL PROTECTION PLAN

1.3. PROTECTION FEATURES

1.4. ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

1.5. NOTIFICATION

**2.0 PRODUCTS (NOT USED)**

**3.0 EXECUTION**

3.1. LAND RESOURCES

3.2. WATER RESOURCES

3.3. AIR RESOURCES

3.4. CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

3.5. RECYCLING AND WASTE MINIMIZATION

3.6. HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

3.7. BIOLOGICAL RESOURCES

3.8. INTEGRATED PEST MANAGEMENT

3.9. PREVIOUSLY USED EQUIPMENT

3.10. MILITARY MUNITIONS

3.11. TRAINING OF CONTRACTOR PERSONNEL

3.12. POST CONSTRUCTION CLEANUP

## 1.0 GENERAL REQUIREMENTS

Minimize environmental pollution and damage that may occur as the result of construction operations. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire duration of this contract. Comply with all applicable environmental Federal, State, and local laws and regulations. The Contractor shall be responsible for any delays resulting from failure to comply with environmental laws and regulations

### 1.1. SUBCONTRACTORS

Ensure compliance with this section by subcontractors.

### 1.2. ENVIRONMENTAL PROTECTION PLAN

1.2.1. The purpose of the Environmental Protection Plan is to present a comprehensive overview of known or potential environmental issues which the Contractor must address during construction. Define issues of concern within the Environmental Protection Plan as outlined in this section. Address each topic in the plan at a level of detail commensurate with the environmental issue and required construction task(s). Identify and discuss topics or issues which are not identified in this section, but which the Contractor considers necessary, after those items formally identified in this section. Prior to commencing construction activities or delivery of materials to the site, submit the Plan for review and Government approval. The Contractor shall meet with the Government prior to implementation of the Environmental Protection Plan, for the purpose of discussing the implementation of the initial plan; possible subsequent additions and revisions to the plan including any reporting requirements; and methods for administration of the Contractor's Environmental Plans. Maintain and keep the Environmental Protection Plan current onsite.

#### 1.2.2. Compliance

No requirement in this Section shall be construed as relieving the Contractor of any applicable Federal, State, and local environmental protection laws and regulations. During Construction, the Contractor shall be responsible for identifying, implementing, and submitting for approval any additional requirements to be included in the Environmental Protection Plan.

#### 1.2.3. Contents

The plan shall include, but shall not be limited to, the following:

1.2.3.1. Name(s) of person(s) within the Contractor's organization who is(are) responsible for ensuring adherence to the Environmental Protection Plan.

1.2.3.2. Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from the site, if applicable

1.2.3.3. Name(s) and qualifications of person(s) responsible for training the Contractor's environmental protection personnel

1.2.3.4. Description of the Contractor's environmental protection personnel training program

1.2.3.5. An erosion and sediment control plan which identifies the type and location of the erosion and sediment controls to be provided. Include monitoring and reporting requirements to assure that the control measures are in compliance with the erosion and sediment control plan, Federal, State, and local laws and regulations. A Storm Water Pollution Prevention Plan (SWPPP) may be substituted for this plan.

1.2.3.6. Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on the site

1.2.3.7. Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Include measures to minimize the amount of mud transported onto paved public roads by vehicles or runoff.

1.2.3.8. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Include measures for marking the limits of use areas including methods for protection of features to be preserved within authorized work areas.

1.2.3.9. Drawing showing the location of on-installation borrow areas.

1.2.3.10. A spill control plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by 40 CFR 68, 40 CFR 302, 40 CFR 355, and/or regulated under State or Local laws and regulations. The spill control plan supplements the requirements of EM 385-1-1. This plan shall include as a minimum:

(a) The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Government and the local Fire Department in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity is released to the environment. The plan shall contain a list of the required reporting channels and telephone numbers.

(b) The name and qualifications of the individual who will be responsible for implementing and supervising the containment and cleanup

(c) Training requirements for Contractor's personnel and methods of accomplishing the training

(d) A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.

(e) The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency

(f) The methods and procedures to be used for expeditious contaminant cleanup

1.2.3.11. A solid waste management plan identifying waste minimization, collection, and disposals methods, waste streams (type and quantity), and locations for solid waste diversion/disposal including clearing debris and C&D waste that is diverted (salvaged, reused, or recycled). Detail the contractor's actions to comply with, and to participate in, Federal, state, regional, local government, and installation sponsored recycling programs to reduce the volume of solid waste at the source. Identify any subcontractors responsible for the transportation, salvage and disposal of solid waste. Submit licenses or permits for solid waste disposal sites that are not a commercial operating facility. Attach evidence of the facility's ability to accept the solid waste to this plan. A construction and demolition waste management plan, similar to the plan specified in the UFGS 01 74 19 (formerly 01572) may be used as the non-hazardous solid waste management plan. Provide a Non-Hazardous Solid Waste Diversion Report. Submit the report on the first working day after the first quarter that non-hazardous solid waste has been disposed and/or diverted and each quarter thereafter (e.g. the first working day of January, April, July, and October) until the end of the project. Additionally, a summary report, with all data fields, is required at the end of the project. The report shall indicate the total type and amount of waste generated, total type and amount of waste diverted, type and amount of waste sent to waste-to-energy facility and alternative daily cover, in tons along with the percent that was diverted. Maintain, track and report construction and demolition waste data in a manner such that the installation can enter the data into the Army SWAR database, which separates data by type of material. A cumulative report in LEED Letter Template format may be used but must be modified to include the date disposed of/diverted and include the above stated diversion data. NOTE: The Solid Waste Diversion Reports are separate documentation that the LEED documentation.

1.2.3.12. DELETED.

1.2.3.13. An air pollution control plan detailing provisions to assure that dust, debris, materials, trash, etc., do not become air borne and travel off the project site.

1.2.3.14. A contaminant prevention plan that: identifies potentially hazardous substances to be used on the job site; identifies the intended actions to prevent introduction of such materials into the air, water, or ground; and details provisions for compliance with Federal, State, and local laws and regulations for storage and handling of

these materials. In accordance with EM 385-1-1, include a copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be on site at any given time in the contaminant prevention plan. Update the plan as new hazardous materials are brought on site or removed from the site. Reference this plan in the storm water pollution prevention plan, as applicable.

1.2.3.15. A waste water management plan that identifies the methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines. If a settling/retention pond is required, include the design of the pond including drawings, removal plan, and testing requirements for possible pollutants. If land application will be the method of disposal for the waste water, include a sketch showing the location for land application along with a description of the pretreatment methods to be implemented and any required permits. If surface discharge will be the method of disposal, include a copy of the permit and associated documents as an attachment prior to discharging the waste water. If disposal is to a sanitary sewer, include documentation that the waste water treatment plant Operator has approved the flow rate, volume, and type of discharge.

1.2.3.16. A historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands known to be on the project site: and/or identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in the area are discovered during construction. Include methods to assure the protection of known or discovered resources and shall identify lines of communication between Contractor personnel and the Government.

1.2.3.17. A pesticide treatment plan, updated, as information becomes available. Include: sequence of treatment, dates, times, locations, pesticide trade name, EPA registration numbers, authorized uses, chemical composition, formulation, original and applied concentration, application rates of active ingredient (i.e. pounds of active ingredient applied), equipment used for application and calibration of equipment. The Contractor is responsible for Federal, State, Regional and Local pest management record keeping and reporting requirements as well as any additional Installation specific requirements. Follow AR 200-5 Pest Management, Chapter 2, Section III "Pest Management Records and Reports" for data required to be reported to the Installation.

## 1.3. PROTECTION FEATURES

This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES AND IMPROVEMENTS. Prior to start of any onsite construction activities, the Contractor and the Government shall make a joint condition survey. Immediately following the survey, the Contractor shall prepare a brief report including a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. Both the Contractor and the Government will sign this survey, upon mutual agreement as to its accuracy and completeness. The Contractor develop a plan that depicts how it will protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference which their preservation may cause to the Contractor's work under the contract.

## 1.4. ENVIRONMENTAL ASSESSMENT OF CONTRACT DEVIATIONS

Any deviations, requested by the Contractor, from the drawings, plans and specifications which may have an environmental impact will be subject to approval by the Government and may require an extended review, processing, and approval time. The Government reserves the right to disapprove alternate methods, even if they are more cost effective, if the Government determines that the proposed alternate method will have an adverse environmental impact.

## 1.5. NOTIFICATION

The Government will notify the Contractor in writing of any observed noncompliance with Federal, State or local environmental laws or regulations, permits, and other elements of the Contractor's Environmental Protection plan. The Contractor shall, after receipt of such notice, inform the Government of the proposed corrective action and take such action when approved by the Government. The Government may issue an order stopping all or part of the

work until satisfactory corrective action has been taken. No time extensions shall be granted or equitable adjustments allowed to the Contractor for any such suspensions. This is in addition to any other actions the Government may take under the contract, or in accordance with the Federal Acquisition Regulation or Federal Law.

## 2.0 PRODUCTS (NOT USED)

## 3.0 EXECUTION

### 3.1. LAND RESOURCES

Confine all activities to areas defined by the drawings and specifications. Prior to the beginning of any construction, identify any land resources to be preserved within the work area. Except in areas indicated on the drawings or specified to be cleared, do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without approval. Do not attach or fasten any ropes, cables, or guys to any trees for anchorage unless specifically authorized. Provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Remove all stone, soil, or other materials displaced into uncleared areas..

#### 3.1.1. Work Area Limits

Prior to commencing construction activities, mark the areas that need not be disturbed under this contract. Mark or fence isolated areas within the general work area which are not to be disturbed. Protect monuments and markers before construction operations commence. Where construction operations are to be conducted during darkness, any markers shall be visible in the dark. Personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

#### 3.1.2. Landscape

Clearly identify trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved by marking, fencing, or wrapping with boards, or any other approved techniques. Restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.

#### 3.1.3. Erosion and Sediment Controls

Provide erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. Coordinate with approving authorities (federal, state, etc.) for specific requirements to be included in the plan. The erosion and sediment controls selected and maintained by the Contractor shall be such that water quality standards are not violated as a result of the Contractor's construction activities. Keep the area of bare soil exposed at any one time by construction operations to a minimum necessary. Construct or install temporary and permanent erosion and sediment control best management practices (BMPs). BMPs may include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. Remove any temporary measures after the area has been stabilized.

#### 3.1.4. Contractor Facilities and Work Areas

Place field offices, staging areas, stockpile storage, and temporary buildings in areas designated on the drawings or as directed by the Government. Make only approved temporary movement or relocation of Contractor facilities. Provide erosion and sediment controls for on-site borrow and spoil areas to prevent sediment from entering nearby waters. Control temporary excavation and embankments for plant and/or work areas to protect adjacent areas.

### 3.2. WATER RESOURCES

Monitor construction activities to prevent pollution of surface and ground waters. Do not apply toxic or hazardous chemicals to soil or vegetation unless otherwise indicated. Monitor all water areas affected by construction activities. For construction activities immediately adjacent to impaired surface waters, the Contractor shall be capable of quantifying sediment or pollutant loading to that surface water when required by state or federally issued Clean Water Act permits.

3.2.1. Stream Crossings

Stream crossings shall allow movement of materials or equipment without violating water pollution control standards of the Federal, State, and local governments or impede state-designated flows.

3.2.2. Wetlands

Do not enter, disturb, destroy, or allow discharge of contaminants into any wetlands.

3.3. AIR RESOURCES

Comply with all Federal and State air emission and performance laws and standards for equipment operation, activities, or processes.

3.3.1. Particulates

Control dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials, such as from asphaltic batch plants, including weekends, holidays and hours when work is not in progress. Maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the Federal, State, and local air pollution standards to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, baghouse, scrubbers, electrostatic precipitators or other methods are permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. Provide sufficient, competent equipment available to accomplish these tasks. Perform particulate control as the work proceeds and whenever a particulate nuisance or hazard occurs. Comply with all State and local visibility regulations.

3.3.2. Odors

Control odors from construction activities at all times. Odors shall not cause a health hazard and shall be in compliance with State regulations and/or local ordinances.

3.3.3. Sound Intrusions

Keep construction activities under surveillance and control to minimize environment damage by noise. Comply with the provisions of the state and Installation rules.

3.3.4. Burning

Burning is not allowed on the project site unless specified in other sections of the specifications or by written authorization. Specific times, locations, and manners of burning shall be subject to approval.

3.4. CHEMICAL MATERIALS MANAGEMENT AND WASTE DISPOSAL

Disposal of wastes shall be as directed below, unless otherwise specified in other sections and/or shown on the drawings.

3.4.1. Solid Wastes

Place solid wastes (excluding clearing debris) in containers which are emptied on a regular schedule. Conduct handling, storage, and disposal to prevent contamination. Employ segregation measures so that no hazardous or toxic waste will become co-mingled with solid waste. Transport solid waste off Government property and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal. The minimum acceptable off-site solid waste disposal option is a Subtitle D RCRA permitted landfill. Verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate. Comply with Federal, State, and local laws and regulations pertaining to the use of landfill areas.

3.4.2. Chemicals and Chemical Wastes

Dispense chemicals, ensuring no spillage to the ground or water. Perform and document periodic inspections of dispensing areas to identify leakage and initiate corrective action. The Government may periodically review this documentation. Collect chemical waste in corrosion resistant, compatible containers. Monitor and remove collection drums to a staging or storage area when contents are within 6 inches of the top. Classify, manage, store, and dispose of wastes in accordance with Federal, State, and local laws and regulations.

3.4.3. Contractor Generated Hazardous Wastes/Excess Hazardous Materials

Hazardous wastes are defined in 40 CFR 261, or are as defined by applicable state and local regulations. Hazardous materials are defined in 49 CFR 171 - 178. At a minimum, manage and store hazardous waste in compliance with 40 CFR 262. Take sufficient measures to prevent spillage of hazardous and toxic materials during dispensing. Segregate hazardous waste from other materials and wastes; protect it from the weather by placing it in a safe covered location and take precautionary measures, such as berming or other appropriate measures, against accidental spillage. Store, describe, package, label, mark, and placard hazardous waste and hazardous material in accordance with 49 CFR 171 - 178, state, and local laws and regulations. Transport Contractor generated hazardous waste off Government property in accordance with the Environmental Protection Agency and the Department of Transportation laws and regulations. Dispose of hazardous waste in compliance with Federal, State and local laws and regulations. Immediately report spills of hazardous or toxic materials to the Government and the Facility Environmental Office. Contractor will be responsible for cleanup and cleanup costs due to spills. Contractor is responsible for the disposition of Contractor generated hazardous waste and excess hazardous materials.

3.4.4. Fuel and Lubricants

Conduct storage, fueling and lubrication of equipment and motor vehicles in a manner that affords the maximum protection against spill and evaporation. Manage and store fuel, lubricants and oil in accordance with all Federal, State, Regional, and local laws and regulations.

3.5. RECYCLING AND WASTE MINIMIZATION

Participate in State and local government sponsored recycling programs. The Contractor is further encouraged to minimize solid waste generation throughout the duration of the project. Line and berm fueling areas and establish storm water control structures at discharge points for site run-off. Keep a liquid containment clean-up kit available at the fueling area.

3.6. HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Existing historical, archaeological, and cultural resources within the Contractor's work area are shown on the drawings. Protect and preserve these resources during the life of the Contract. Temporarily suspend all activities that may damage or alter such resources, if any previously unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found during excavation or other construction activities. Resources covered by this paragraph include but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Upon such discovery or find, notify the Government so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. Cease all activities that may result in impact to or the destruction of these resources. Secure the area and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources.

3.7. BIOLOGICAL RESOURCES

Minimize interference with, disturbance to, and damage to fish, wildlife, and plants, including their habitat. Protect threatened and endangered animal and plant species including their habitat in accordance with Federal, State, Regional, and local laws and regulations.

3.8. INTEGRATED PEST MANAGEMENT

Coordinate, through the Government, with the Installation Pest Management Coordinator (IPMC) at the earliest possible time prior to pesticide application, in order to minimize impacts to existing fauna and flora. Discuss

integrated pest management strategies with the IPMC and receive concurrence from the IPMC, through the COR, prior to the application of any pesticide associated with these specifications. Give IMPC personnel the opportunity to be present at all meetings concerning treatment measures for pest or disease control and during application of the pesticide. The use and management of pesticides are regulated under 40 CFR 152 - 186.

3.8.1. Pesticide Delivery and Storage

Deliver pesticides, approved for use on the Installation, to the site in the original, unopened containers bearing legible labels indicating the EPA registration number and the manufacturer's registered uses.

3.8.2. Qualifications

Use the services of a subcontractor for pesticide application whose principal business is pest control. The subcontractor shall be licensed and certified in the state where the work is to be performed.

3.8.3. Pesticide Handling Requirements

Formulate, treat with, and dispose of pesticides and associated containers in accordance with label directions.

3.8.4. Application

A state certified pesticide applicator shall apply pesticides in accordance with EPA label restrictions and recommendations.

3.9. PREVIOUSLY USED EQUIPMENT

Clean all previously used construction equipment prior to bringing it onto the project site. Ensure that the equipment is free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. Consult with the USDA jurisdictional office for additional cleaning requirements.

3.10. MILITARY MUNITIONS

Immediately stop work in that area and immediately inform the Government, in the event military munitions, as defined in 40 CFR 260, are discovered or uncovered.

3.11. TRAINING OF CONTRACTOR PERSONNEL

Train personnel in all phases of environmental protection and pollution control. Conduct environmental protection/pollution control meetings for all Contractor personnel prior to commencing construction activities. Conduct additional meetings for new personnel and when site conditions change. The training and meeting agenda shall include methods of detecting and avoiding pollution; familiarization with statutory and contractual pollution standards; installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, wetlands, and endangered species and their habitat that are known to be in the area.

3.12. POST CONSTRUCTION CLEANUP

Clean up all areas used for construction in accordance with Contract Clause: "Cleaning Up". Unless otherwise instructed in writing , obliterate all signs of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. Grade, fill and seed the entire disturbed area, unless otherwise indicated.

**SECTION 01 62 35**
REV 2.0 - 15 AUG 2007

**RECYCLED/RECOVERED MATERIAL**

**1.0 GENERAL**

1.1. REFERENCES

1.2. OBJECTIVES

1.3. EPA DESIGNATED ITEMS INCORPORATED IN THE WORK

1.4. EPA PROPOSED ITEMS INCORPORATED IN THE WORK

1.5. EPA LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN THE WORK

## 1.0 GENERAL

### 1.1. REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

- U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
- 40 CFR 247 Comprehensive Procurement Guideline for Products Containing Recovered Materials

### 1.2. OBJECTIVES

Government procurement policy is to acquire, in a cost effective manner, items containing the highest percentage of recycled and recovered materials practicable consistent with maintaining a satisfactory level of competition without adversely affecting performance requirements or exposing suppliers' employees to undue hazards from the recovered materials. The Environmental Protection Agency (EPA) has designated certain items which must contain a specified percent range of recovered or recycled materials. The Contractor shall make all reasonable efforts to use recycled and recovered materials in providing the EPA designated products and in otherwise utilizing recycled and recovered materials in the execution of the work.

### 1.3. EPA DESIGNATED ITEMS INCORPORATED IN THE WORK

Materials that have been designated by EPA as being products which are or can be made with recovered or recycled materials, when incorporated into the work under this contract, shall contain at least the minimum percentage of recycled or recovered materials indicated by EPA unless adequate justification (non-availability) for non-use is provided. When a designated item is specified as an option to a non-designated item, the designated item requirements apply only if the designated item is used in the work.

### 1.4. EPA PROPOSED ITEMS INCORPORATED IN THE WORK

Products other than those designated by EPA are still being researched and are being considered for future Comprehensive Procurement Guideline (CPG) designation. It is recommended that these items, when incorporated in the work under this contract, contain the highest practicable percentage of recycled or recovered materials, provided specified requirements are also met.

### 1.5. EPA LISTED ITEMS USED IN CONDUCT OF THE WORK BUT NOT INCORPORATED IN THE WORK

There are many products listed in 40 CFR 247 which have been designated or proposed by EPA to include recycled or recovered materials that may be use by the Contractor in performing the work but will not be incorporated into the work. These products include office products, temporary traffic control products, and pallets. It is recommended that these non-construction products, when used in the conduct of the work, contain the highest practicable percentage of recycled or recovered materials and that these products be recycled when no longer needed.

End of Section 01 62 35

**SECTION 01 78 02.00 10**
REV 2.1 – 28 FEB 2009

**CLOSEOUT SUBMITTALS**

**1.0 OVERVIEW**

1.1. SUBMITTALS

1.2. PROJECT RECORD DOCUMENTS

1.3. EQUIPMENT DATA

1.4. CONSTRUCTION WARRANTY MANAGEMENT

1.5. MECHANICAL TESTING, ADJUSTING, BALANCING, AND COMMISSIONING

1.6. OPERATION AND MAINTENANCE MANUALS

1.7. FIELD TRAINING

1.8. PRICING OF CONTRACTOR-FURNISHED AND INSTALLED PROPERTY AND GOVERNMENT-FURNISHED CONTRACTOR-INSTALLED PROPERTY

1.9. LEED REVIEW MEETINGS

1.10. RED ZONE MEETING

1.11. FINAL CLEANING

**EXHIBIT 1 SAMPLE RED ZONE MEETING CHECKLIST**

## 1.0 OVERVIEW

### 1.1. SUBMITTALS

Government approval is required for any submittals with a "G" designation; submittals not having a "G" designation are for Designer of Record approval or for information only. Submit the following in accordance with Section 01 33 00 submittals***:***

SD-02 Shop Drawings

– As-Built Drawings - G

▪ Drawings showing final as-built conditions of the project. Provide electronic drawing files as specified in Section 01 33 16, 3 sets of blue-line prints and one set of the approved working as-built drawings.

SD-03 Product Data

– As-Built Record of Equipment and Materials

▪ Two copies of the record listing the as-built materials and equipment incorporated into the construction of the project.

– Construction Warranty Management Plan

▪ Three sets of the construction warranty management plan containing information relevant to the warranty of materials and equipment incorporated into the construction project, including the starting date of warranty of construction. Furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

– Warranty Tags

▪ Two record copies of the warranty tags showing the layout and design.

– Final Cleaning

▪ Two copies of the listing of completed final clean-up items.

### 1.2. PROJECT RECORD DOCUMENTS

#### 1.2.1. As-Built Drawings – G

An as-built drawing is a construction drawing revised to reflect the final as-built conditions of the project as a result of modifications and corrections to the project design required during construction. The final as-built drawings shall not have the appearance of marked up drawings, but that of professionally prepared drawings as if they were the "as designed" drawings.

#### 1.2.2. Maintenance of As-Built Drawings

1.2.2.1. The Configuration Management Plan shall describe how the Contractor will maintain up-to-date drawings, how it will control and designate revisions to the drawings and specifications (In accordance with Special Contract Requirement: ***Deviating from the Accepted Design*** and Section 01 33 16: ***Design after Award***, the Designer of Record's approval is necessary for any revisions to the accepted design).

1.2.2.2. Make timely updates, carefully maintaining a record set of working as-built drawings at the job site, marked in red, of all changes and corrections from the construction drawings. Enter changes and corrections on drawings promptly to reflect "Current Construction". Perform this update no less frequently than weekly for the blue line drawings and update no less frequently than quarterly for the CADD/CAD and BIM files, which were prepared previously in accordance with Section 01 33 16. Include a confirmation that the as-builts are up to date with the submission of the monthly project schedule.

1.2.2.3. If the DB Contractor fails to maintain the as-built drawings as required herein, the Government will retain from the monthly progress payment, an amount representing the estimated monthly cost of maintaining the as-built drawings. Final payment with respect to separately priced facilities or the contract as a whole will be withheld until the Contractor submits acceptable as-built drawings and the Government approves them.

1.2.2.4. The marked-up set of drawings shall reflect any changes, alterations, adjustments or modifications. Changes must be reflected on all sheets affected by the change. Changes shall include marking the drawings to reflect structural details, foundation layouts, equipment sizes, and other extensions of design.

1.2.2.5. Typically, room numbers shown on the drawings are selected for design convenience and do not represent the actual numbers intended for use by the end user. Final as-built drawings shall reflect actual room numbers adopted by the end user.

1.2.2.6. If there is no separate contract line item (CLIN) for as-built drawings, the Government will withhold the amount of $35,000, or 1% of the present construction value, whichever is the greater, until the final as-built drawing submittal has been approved by the Government.

1.2.3. Underground Utilities

The drawings shall indicate, in addition to all changes and corrections, the actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, the as-built drawings shall show, by offset dimensions to two permanently fixed surface features, the end of each run including each change in direction. Locate Valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Record average elevation of the top of each run or underground structure..

1.2.4. Partial Occupancy

For projects where portions of construction are to be occupied or activated before overall project completion, including portions of utility systems, supply as-built drawings for those portions of the facility being occupied or activated at the time the facility is occupied or activated. Show this same as-built information previously furnished on the final set of as-built drawings.

1.2.5. As-Built Conditions That are Different From the construction Drawings

Accurately reflect all as-built conditions that are different, such as dimensions, road alignments and grades, and drainage and elevations, from the construction drawings on each drawing. If the as-built condition is accurately reflected on a shop drawing, then furnish that shop drawing in CADD format. Reference the final as-built construction drawing the shop drawing file that includes the as-built information. In turn, the shop drawing shall reference the applicable construction as-built drawing. Delete any options shown on drawings and not selected clearly reflect options selected on final as-built drawings.

1.2.6. Additional As-Built Information that Exceeds the Detail Shown on the construction Drawings:

These as-built conditions include those that reflect structural details, foundation layouts, equipment, sizes, mechanical and electrical room layouts and other extensions of design, that were not shown in the project design documents because the exact details were not known until after the time of approved shop drawings. It is recognized that these shop drawing submittals (revised showing as-built conditions) will serve as the as-built record without actual incorporation into the construction drawings, piping, and equipment drawings. Include locations of all explorations, logs of all explorations, and results of all laboratory testing, including those provided by the Government. Furnish all such shop drawings in CADD /CADformat. Include fire protection details, such as wiring, performed for the design of the project.

1.2.7. Final As-Built Drawings

Submit final as-built CADD/CAD and BIM Model(s) and Facility Data files at the time of Beneficial Occupancy of the project or at a designated phase of the project. In the event the Contractor accomplishes additional work after this submittal, which changes the as-built conditions, submit a new DVD with all drawing sheets and three blue-line copies of affected sheets which depict additional changes.

1.2.8. Title Blocks

In accordance with the configuration management plan, clearly mark title blocks to indicate final as-built drawings.

1.2.9. Other As-Built Documents

Provide scans of all other documents such as design analysis, catalog cuts, certification documents that are not available in native electronic format in an organized manner in Adobe.pdf format.

1.2.9.1. LEED Documentation

Update LEED documentation on at least a monthly basis and have it available for review by the Government on the jobsite at all times during construction. Submit the final LEED Project Checklist(s), final LEED submittals checklist and complete project documentation, verifying the final LEED score and establishing the final rating. Provide full support to the validation review process, including credit audits. See also the LEED documentation requirements in Section 01 33 16, DESIGN AFTER AWARD.

1.2.9.2. GIS Documentation

Provide final geo-referenced GIS database of the new building footprint along with any changes made to exterior of the building. The intent of capturing the final building footprint and exterior modifications in a GIS database is to provide the installation with a data set of the comprehensive changes made to the landscape as a result of the construction project. The Government will incorporate this data set into the installations existing GIS MasterPlan or Enterprise GIS system. The GIS database deliverable shall follow a standard template provided to the Contractor by the Government, adhere to detailed specifications outlined in ECB No 2006-15, and be documented using the Federal Geographic Data Committee (FGDC) metadata standard.

1.3. EQUIPMENT DATA

1.3.1. Real Property Equipment

Provide an Equipment-in-Place list of all installed equipment furnished under this contract. Include all information usually listed on manufacturer's name plate. Include the cost of each piece of installed property F.O.B. construction site. For each of the items which is specified herein to be guaranteed for a specified period from the date of acceptance thereof, provide the following information: The name, serial and model number address of equipment supplier, or manufacturer originating the guaranteed item. The Contractor's guarantee to the Government of these items will not be limited by the terms of any manufacturer's guarantee to the Contractor. Furnish the list as one (1) reproducible and three (3) copies thirty (30) calendar days before completion of any segment of the contract work which has an incremental completion date.

1.3.2. Maintenance and Parts Data

Furnish a brochure, catalog cut, parts list, manufacturer's data sheet or other publication showing detailed parts data on all other equipment subject to repair and maintenance procedures not otherwise required in Operations and Maintenance Manuals specified elsewhere in this contract. Distribution of directives shall follow the same requirements as listed in paragraph above.

1.3.3. Construction Specifications

Furnish permanent electronic files of final as-built construction specifications, including modifications thereto, with the as-built drawings.

1.4. CONSTRUCTION WARRANTY MANAGEMENT

1.4.1. Prior to the end of the one year warranty, the Government may conduct an infrared roof survey on any project involving a membrane roofing system. This survey will be conducted in accordance with ASTM C1153-90, "Standard Practice for Location of Wet Insulation in Roofing Systems Using Infrared Imaging". The Contractor shall replace all damaged materials and locate and repair sources of moisture penetration.

1.4.2. Management

1.4.2.1. Warranty Management Plan

Develop a warranty management plan containing information relevant to the clause ***Warranty of Construction*** in FAR 52.246-21. Submit the warranty management plan for Government approval at least 30 days before the planned pre-warranty conference. In the event of phased turn-over of the contract, update the Warranty Management Plan as necessary to include latest information required. Include all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan shall be in narrative form and contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below shall include due date and whether item has been submitted or was accomplished. Submit warranty information made available during the construction phase prior to each monthly pay estimate. Assemble information in a binder and turn over to the Government upon acceptance of the work. The construction warranty period shall begin on the date of project acceptance and shall continue for the full product warranty period. The Contractor, Government, including the Customer Representative shall jointly conduct warranty inspections, 4 months and 9 months, after acceptance. The warranty management plan shall include, but shall not be limited to, the following information:

(1) Roles and responsibilities of all personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the contractors, subcontractors, manufacturers or suppliers involved.

(2) Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

(3) A list for each warranted equipment, item, feature of construction or system indicating:

(i) Name of item.

(ii) Model and serial numbers.

(iii) Location where installed.

(iv) Name and phone numbers of manufacturers or suppliers.

(v) Names, addresses and telephone numbers of sources of spare parts.

(vi) Warranties and terms of warranty. Include one-year overall warranty of construction. Indicate those items, which have extended warranties with separate warranty expiration dates.

(vii) Cross-reference to warranty certificates as applicable.

(viii) Starting point and duration of warranty period.

(ix) Summary of maintenance procedures required to continue the warranty in force.

(x) Cross-reference to specific pertinent Operation and Maintenance manuals.

(xi) Organization, names and phone numbers of persons to call for warranty service.

(xii) Typical response time and repair time expected for various warranted equipment.

(4) The Contractor's plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

(5) Procedure and status of tagging of all equipment covered by extended warranties.

(6) Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

1.4.3. Performance Bond

1.4.3.1. The Contractor's Performance Bond will remain effective throughout the construction warranty period.

1.4.3.2. In the event the Contractor or his designated representative(s) fails to commence and diligently pursue any work required under this clause, and in a manner pursuant to the requirements thereof, the Government shall have

a right to demand that said work be performed under the Performance Bond by making written notice on the surety. If the surety fails or refuses to perform the obligation it assumed under the Performance Bond, the Government shall have the work performed by others, and after completion of the work, may make demand for reimbursement of any or all expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

1.4.3.3. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Government will have the right to recoup expenses from the bonding company.

1.4.3.4. Following oral or written notification of required warranty repair work, the Contractor will respond as dictated by para. 1.4.5. Written verification will follow oral instructions. Failure of the Contractor to respond will be cause for the Government to proceed against the Contractor as outlined in the paragraph 1.4.5.5 and/or above.

1.4.4. Pre-Warranty Conference

Prior to contract completion, or completion of any phase or portion of contract to be turned over, and at a time designated by the Contracting Officer, the Contractor shall meet with the Government to develop a mutual understanding with respect to the requirements of this clause. Communication procedures for Contractor notification of warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Government for the execution of the construction warranty shall be established/reviewed at this meeting. In connection with these requirements and at the time of the Contractor's quality control completion inspection, the Contractor will furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue warranty work action on behalf of the Contractor. This point of contact will be located within the local service area of the warrantied construction, will be continuously available, and will be responsive to Government inquiry on warranty work action and status. This requirement does not relieve the Contractor of any of his responsibilities in connection with other portions of this provision.

1.4.5. Contractor's Response to Warranty Service Requirements.

Following Government oral or written notification, which may include authorized installation maintenance personnel, the Contractor shall respond to warranty service requirements in accordance with the "Warranty Service Priority List" and the three categories of priorities listed below. Submit a report on any warranty item that has been repaired during the warranty period. The report shall include the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframe specified, the Government will perform the work and backcharge the construction warranty payment item established.

1.4.5.1. First Priority Code 1 Perform onsite inspection to evaluate situation, and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.

1.4.5.2. Second Priority Code 2 Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.

1.4.5.3. Third Priority Code 3 All other work to be initiated within 3 work days and work continuously to completion or relief.

1.4.5.4. The "Warranty Service Priority List" is as follows:

- Code 1 - Air Conditioning System

(a) Buildings with computer equipment.

(b) Barracks, mess halls (entire building down).

- Code 2 - Air Conditioning Systems

(a) Recreational support.

(b) Air conditioning leak in part of building, if causing damage.

(c) Air conditioning system not cooling properly

(d) Admin buildings with Automated Data Processing (ADP) equipment not on priority list.

- Code 1 - Doors

(a) Overhead doors not operational.

- Code 1 - Electrical

(a) Power failure (entire area or any building operational after 1600 hours).

(b) Traffic control devices.

(c) Security lights.

(d) Smoke detectors and fire alarm systems

(e) Power or lighting failure to an area, facility, portion of a facility, which may adversely impact health, safety, security, or the installation's mission requirement, or which may result in damage to property.

- Code 2 - Electrical

(a) Power failure (no power) for unoccupied buildings or portions thereof or branch circuits within occupied buildings, not listed as Code 1.

(a) Receptacle and lights, not listed as code 1.

- Code 3 - Electrical

(a) Street, parking area lights

- Code 1 - Gas

(a) Leaks and breaks.

(b) No gas to cantonment area.

- Code 1 - Heat

(a) Area power failure affecting heat.

(b) Heater in unit not working.

- Code 2 Heat

(a) All heating system failures not listed as Code 1.

- Code 3 - Interior

(a) Floor damage

(b) Paint chipping or peeling

- Code 1 - Intrusion Detection Systems - N/A.
- Code 2 - Intrusion Detection Systems other than those listed under Code 1
- Code 1 - Kitchen Equipment

(a) Dishwasher.

(b) All other equipment hampering preparation of a meal.

- Code 2 - Kitchen Equipment

(a) All other equipment not listed under Code 1.

- Code 2 - Plumbing

(a) Flush valves not operating properly

(b) Fixture drain, supply line commode, or water pipe leaking.

(c) Commode leaking at base.

- Code 3 - Plumbing

(a) Leaking faucets

- Code 1 - Refrigeration

(a) Mess Hall.

(b) Medical storage.

- Code 2 - Refrigeration

(a) Mess hall - other than walk-in refrigerators and freezers.

- Code 1 - Roof Leaks

(a) Temporary repairs will be made where major damage to property is occurring.

- Code 2 - Roof Leaks

(a) Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

- Code 1 - Sprinkler System

(a) All sprinkler systems, valves, manholes, deluge systems, and air systems to sprinklers.

- Code 1 - Tank Wash Racks (Bird Baths)

(a) All systems which prevent tank wash.

- Code 1 - Water (Exterior)

(a) Normal operation of water pump station.

- Code 2 - Water (Exterior)

(a) No water to facility.

- Code 1 - Water, Hot (and Steam)

(a) Barracks (entire building).

- Code 2 - Water, Hot

(a) No hot water in portion of building listed under Code 1

1.4.5.5. Should parts be required to complete the work and the parts are not immediately available, the Contractor shall have a maximum of 12 hours after arrival at the job site to provide the Government, with firm written proposals for emergency alternatives and temporary repairs for Government participation with the Contractor to provide emergency relief until the required parts are available on site for the Contractor to perform permanent warranty repair. The Contractors proposals shall include a firm date and time that the required parts shall be available on site to complete the permanent warranty repair. The Government will evaluate the proposed alternatives and negotiate the alternative considered to be in the best interest of the Government to reduce the impact of the emergency condition. Alternatives considered by the Government will include the alternative for the Contractor to "Do Nothing" while waiting until the required parts are available to perform permanent warranty repair. Negotiating a proposal which will require Government participation and the expenditure of Government funds shall constitute a separate procurement action by the using service.

1.4.6. Equipment Warranty Identification Tags

1.4.6.1. Provide warranty identification tags at the time of installation and prior to substantial completion shall provide warranty identification tags on all Contractor and Government furnished equipment which the Contractor has installed.

(a) The tags shall be suitable for interior and exterior locations, resistant to solvents, abrasion, and to fading caused by sunlight, precipitation, etc. These tags shall have a permanent pressure-sensitive adhesive back, and they shall be installed in a position that is easily (or most easily) noticeable. Tag each component of contractor furnished equipment that has differing warranties on its components.

(b) Submit sample tags, representing how the other tags will look, for Government review and approval.

(c) Tags for Warrantied Equipment: The tag for this equipment shall be similar to the following: Exact format and size will be as approved.

---

EQUIPMENT WARRANTY - CONTRACTOR FURNISHED EQUIPMENT

MFG NAME MODEL NO.

SERIAL NO.

CONTRACT NO.

CONTRACTOR NAME

CONTRACTOR WARRANTY EXPIRES

MFG WARRANTY(IES) EXPIRE

---

---

EQUIPMENT WARRANTY - GOVERNMENT FURNISHED EQUIPMENT

MFG NAME MODEL NO.

SERIAL NO.

CONTRACT NO.

DATE EQUIP PLACED IN SERVICE

MFG WARRANTY(IES) EXPIRE

---

(d) If the manufacturer's name (MFG), model number and serial number are on the manufacturer's equipment data plate and this data plate is easily found and fully legible, this information need not be duplicated on the equipment warranty tag

1.4.6.2. Execution: Complete the required information on each tag and install these tags on the equipment by the time of and as a condition of final acceptance of the equipment.

1.5. MECHANICAL TESTING, ADJUSTING, BALANCING, AND COMMISSIONING

Submit; all reports, statements, certificates, and completed checklists for testing, adjusting, balancing, and commissioning of mechanical systems prior to final inspection and transfer of the completed facility for approval, as specified in applicable technical specification sections.

1.6. OPERATION AND MAINTENANCE MANUALS

1.6.1. General Requirements

1.6.1.1. Inasmuch as the operations and maintenance manuals are required to operate and maintain the facility, the operations and maintenance (O&M) manuals will be considered a requirement prior to substantial completion of any facility to be turned over to the Government. Beneficial occupancy of all or portions of a facility prior to substantial completion will not relieve the Contractor of liquidated damages, if substantial completion exceeds the required completion date.

1.6.1.2. Provide one permanent electronic copy on CD-ROM and 2 hard copies of the Equipment Operating, Maintenance, and Repair Manuals. Provide separate manuals for each utility system as defined hereinafter. Submit Operations and Maintenance manuals for approval before field training or 90 days before substantial completion (whichever occurs earlier). If there is no separate CLIN for O&M Manuals, the Government will withhold an amount representing $20,000, as non-progressed work, until submittal and approval of all O&M manuals are complete.

1.6.2. Definitions

1.6.2.1. Equipment

A single piece of equipment operating alone or in conjunction with other equipment to accomplish a system function.

1.6.2.2. System

A combination of one or more pieces of equipment which function together to accomplish an intended purpose (i.e. HVAC system is composed of many individual pieces of equipment such as fans, motors, compressors, valves, sensors, relays, etc.)

1.6.3. Hard Cover Binders

The manuals shall be hard cover with posts, or 3-ring binders, so sheets may be easily substituted. Print the following identification on the cover: the words "EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUALS," the project name, building number, and an indication of utility or systems covered, the name of the Contractor, and the Contract number. Manuals shall be approximately 8-1/2 by 11-inches with large sheets folded in and capable of being easily pulled out for reference. All manuals for the project must be similar in appearance, and be of professional quality.

1.6.4. Warning Page

Provide a warning page to warn of potential dangers (if they exist, such as high voltage, toxic chemicals, flammable liquids, explosive materials, carcinogens, high pressures, etc.). Place the warning page inside the front cover and in front of the title page. Include any necessary Material Safety Data Sheets (MDSD) here.

1.6.5. Title Page

The title page shall include the same information shown on the cover and show the name of the preparing firm and the date of publication.

1.6.6. Table of Contents

Each volume of the set of manuals for this project shall include a table of contents, for the entire set, broken down by volume.

1.6.7. GENERAL

Organize manuals according to the following format, and include information for each item of equipment Submit a draft outline and table of contents for approval at 50% contract completion.

TABLE OF CONTENTS

PART I: Introduction

- Equipment Description
- Functional Description
- Installation Description

PART II: Operating Principles

PART III: Safety

PART IV: Preventive Maintenance

- Preventive Maintenance Checklist, Lubrication
- Charts and Diagrams

PART V: Spare Parts Lists

- Troubleshooting Guide
- Adjustments
- Common Repairs and Parts Replacement

PART VI: Illustrations

1.6.7.1. Part I-Introduction

Part I shall provide an introduction, equipment or system description, functional description and theory of operation, and installation instructions for each piece of equipment. Include complete instructions for uncrating, assembly, connection to the power source and pre-operating lubrication in the installation instructions as applicable. Illustrations, including wiring and cabling diagrams, are required as appropriate in this section. Include halftone pictures of the equipment in the introduction and equipment description, as well as system layout drawings with each item of equipment located and marked. Do not use copies of previously submitted shop drawings in these manuals.

1.6.7.2. Part II-Operating Principles

Part II shall provide complete instructions for operating the system, and each piece of equipment. Illustrations, halftone pictures, tables, charts, procedures, and diagrams are required when applicable. This will include step-by-step procedures for start-up and shutdown of both the system and each component piece of equipments, as well as adjustments required to obtain optimum equipment performance, and corrective actions for malfunctions. Show performance sheets and graphs showing capacity data, efficiencies, electrical characteristics, pressure drops, and flow rates here, also. Marked-up catalogs or catalog pages do not satisfy this requirement. Present performance information as concisely as possible with only data pertaining to equipment actually installed. Include actual test data collected for Contractor performance here.

1.6.7.3. Part III-Safety

Part III shall contain the general and specific safety requirements peculiar to each item of equipment. Repeat safety information as notes cautions and warnings in other sections where appropriate to operations described.

1.6.7.4. Part IV-Preventive Maintenance

Part IV shall contain a troubleshooting guide, including detailed instructions for all common adjustments and alignment procedures, including a detailed maintenance schedule. Also include a diagnostic chart showing symptoms and solutions to problems. Include test hookups to determine the cause, special tools and test equipment, and methods for returning the equipment to operating conditions. Information may be in chart form or in tabular format with appropriate headings. Include instructions for the removal, disassembly, repair, reassembly, and replacement of parts and assemblies where applicable and the task is not obvious.

1.6.7.5. Part V-Spare Parts List

Part V shall contain a tabulation of description data and parts location illustrations for all mechanical and electrical parts. The heading of the parts list shall clearly identify the supplier, purchase order number, and equipment. Include the unit price for each part. List parts by major assemblies, and arrange the listing in columnar form. Include names and addresses of the nearest manufacturer's representatives, as well as any special warranty information. Provide a list of spare parts that are recommended to be kept in stock by the Government installation.

1.6.7.6. Part VI-Illustrations

Part VI shall contain assembly drawings for the complete equipment or system and for all major components. Include complete wiring diagrams and schematics. Other illustrations, such as exploded views, block diagrams, and cutaway drawings, are required as appropriate.

1.6.8. Framed Instructions

Post framed instructions are required for substantial completion. Post framed instructions under glass or in laminated plastic, including wiring and control diagrams showing the complete layout of the entire system, including equipment, ductwork, piping valves, dampers, and control sequence at a location near the equipment described. Prepare condensed operating instructions explaining preventive maintenance procedures methods of checking the system for normal safe operation, valve schedule and procedures for safely starting and stopping the system in type form, framed as specified above for the wiring and control diagrams and posted beside the diagrams. Submit proposed diagrams, instructions, and other sheets prior to posting. Post the framed instructions before field training.

1.6.9. (Reserved. See 1.7 for Field Training)

1.6.10. System/Equipment Requirements

1.6.10.1. Facility Heating System

Provide information on the following equipment: boilers, water treatment, chemical feed pumps and tanks, converters, heat exchangers, pumps, unit heaters, fin-tube radiation, air handling units (both heating only and heating and cooling), and valves (associated with heating systems).

1.6.10.2. Air-Conditioning Systems

Provide information in chillers, packaged air-conditioning equipment, towers, water treatment, chemical feed pumps and tanks, air-cooled condensers, pumps, compressors, air handling units, and valves (associated with air-conditioning systems).

1.6.10.3. Temperature Control and HVAC Distribution Systems

Provide all information described for the following equipment: valves, fans, air handling units, pumps, boilers, converters and heat exchangers, chillers, water cooled condensers, cooling towers, and fin-tube radiation, control air compressors, control components (sensors, controllers, adapters and actuators), and flow measuring equipment.

1.6.10.4. Central Heating Plants

Provide the information described for the following equipment: boilers, converters, heat exchangers, pumps, fans, steam traps, pollution control equipment, chemical feed equipment, control systems, fuel handling equipment, de-aerators, tanks (flash, expansion, return waters, etc.), water softeners, and valves.

1.6.10.5. Heating Distribution Systems

Provide the information described for the following equipment: valves, fans, pumps, converters and heat exchangers, steam traps, tanks (expansion, flash, etc.), and piping systems.

1.6.10.6. Exterior Electrical Systems

Provide information on the following equipment: power transformers, relays, reclosers, breakers, and capacitor bank controls.

1.6.10.7. Interior Electrical Systems

Provide information on the following equipment: relays, motor control centers, switchgear, solid state circuit breakers, motor controller, EPS lighting systems, wiring diagrams and troubleshooting flow chart on control systems, and special grounding systems.

1.6.10.8. Energy Monitoring and Control Systems

The maintenance manual shall include descriptions of maintenance for all equipment, including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.

1.6.10.9. Domestic Water Systems

Provide the identified information on the following equipment: tanks, unit process equipment, pumps, motors, control and monitoring instrumentation, laboratory test equipment, chemical feeders, valves, switching gear, and automatic controls.

1.6.10.10. Wastewater Treatment Systems

Provide the identified information on the following equipment: tanks, unit process equipment, pumps, motors, control and monitoring instrumentations, laboratory test equipment chemical feeders, valves, scrapers, skimmers, comminutors, blowers, switching gear, and automatic controls.

1.6.10.11. Fire Protection Systems

Provide information on the following equipment: alarm valves, manual valves, regulators, foam and gas storage tanks, piping materials, sprinkler heads, nozzles, pumps, and pump drivers.

1.6.10.12. Fire Alarm and Detection Systems

(1) The maintenance manual shall include description of maintenance for all equipment, including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

(2) Provide all software; database with complete identification of programmable portions of system equipment and devices, and all other system programming data on all modes of the system; connecting cables; and proprietary equipment necessary for the operation, maintenance, testing, repair and programming, etc. of the system and that may be required for implementation of future changes to the fire system (additional and/or relocated initiating devices, notification devices, etc.

(3) Provide all system and equipment technical data and computer software with the requisite rights to Government use, in accordance with the applicable contract clauses.

(4) Training shall include software and programming required for the effective operation, maintenance, testing, diagnostics and expansion of the system.

1.6.10.13. Plumbing Systems

Provide information on the following equipment: water heaters, valves, pressure regulators backflow preventors, piping materials, and plumbing fixtures.

1.6.10.14. Liquid Fuels Systems

Provide information on the following equipment: tanks, automatic valves manual valves, filter separators, pumps, mechanical loading arms, nozzles, meters, electronic controls, electrical switch gear, and fluidic controls.

1.6.10.15. Cathodic Protection Systems

Provide information on the following material and equipment: rectifiers, meters, anodes, anode backfill, anode lead wire, insulation material and wire size, automatic controls (if any), rheostats, switches, fuses and circuit breakers, type and size of rectifying elements, type of oil in oil-immersed rectifiers, and rating of shunts.

1.6.10.16. Generator Installations

Provide information on the following equipment: generator sets, automatic transfer panels, governors, exciters, regulators starting systems, switchgear, and protective devices.

1.6.10.17. Miscellaneous Systems

Provide information on the following: communication and ADP systems, security and intrusion alarm, elevators, material handling, active solar, photovoltaic, nurse call, paging, intercom, closed circuit TV, irrigation, sound and material delivery systems, kitchen, refrigeration, disposal, ice making equipment, and other similar type special systems not otherwise specified.

1.6.10.18. Laboratory, Environmental and Pollution Control Systems

Provide information on the following equipment: wet scrubbers, quench chambers, scrub tanks, liquid oil separators, and fume hoods.

1.7. FIELD TRAINING

Field Training is a requirement for substantial completion. Conduct a training course for the operating staff for each particular system. Conduct the training is to be conducted during hours of normal working time after the system is functionally complete. The field instructions shall cover all of the items contained in the Equipment Operating, Maintenance and Repair Manuals. The training will include both classroom and "hands-on" training. Submit a lesson plan outlining the information to be discussed during training periods. Submit this lesson plan for approval 90 days before contract completion before the field training occurs. Record training on DVD and furnish to the Government within ten (10) days following training. Document all training and furnish a list of all attendees.

1.8. PRICING OF CONTRACTOR-FURNISHED AND INSTALLED PROPERTY AND GOVERNMENT-FURNISHED CONTRACTOR-INSTALLED PROPERTY

Promptly furnish and require any sub-contractor or supplier to furnish, in like manner, unit prices and descriptive data required by the Government for Property Record purposes of fixtures and equipment furnished and/or installed by the Contractor or sub-contractor, except prices do not need to be provided for Government-Furnished Property.

1.9. LEED REVIEW MEETINGS

1.9.1. Pre-Closeout Meeting. Approximately 30 days before submittal of LEED closeout documentation, the Contractor and the Government's project delivery team (including Installation representative) will meet to review the documentation, determine which, if any, credits will be audited and identify any corrections/missing items prior to the closeout LEED documentation submittal.

1.9.2. Approximately 14 days after submittal of LEED closeout documentation, the Contractor and the Government's project delivery team (including Installation representative) will meet to review the LEED closeout

documentation. The review conference will include discussion of and resolution of all review comments to ensure consensus on achievement of credits and satisfactory documentation. At the review conference a final score will be determined and endorsed in writing by all parties.

## 1.10. RED ZONE MEETING

At approximately 80% of contract completion or 60 days before the anticipated Beneficial Occupancy Date (BOD), whichever occurs first, the Contractor and the Government's project delivery team will conduct what is known as the Red Zone Meeting to discuss the close-out process, to schedule the events and review responsibilities for actions necessary to produce a timely physical, as well as fiscal, project close-out. The Red Zone meeting derives its name from the football term used to describe the team effort to move the ball the last 20 yards into the end zone. The close-out of a construction project sometimes can be equally as hard and most definitely requires the whole team's efforts. The ACO will chair the meeting. If not already provided, shortly before the meeting, the Contractor shall provide an electronic copy or access to the CADD as-built drawings, completed commensurate with the amount of work completed at the time of the Red Zone Meeting, as an indicator of the Contractors' understanding of and ability to meet the USACE CADD Standards and to ensure that the Contractor is making progress with CADD As-Built requirements. EXHIBIT 1 is a generic meeting checklist.

## 1.11. FINAL CLEANING

Clean the premises in accordance with FAR clause 52.236-12 and additional requirements stated here. Remove stains, foreign substances, and temporary labels from surfaces. Vacuum carpet and soft surfaces. Clean equipment and fixtures to a sanitary condition. Clean or replace filters of operating equipment if cleaning isn't possible or practicable. Remove debris from roofs, drainage systems, gutters, and downspouts. Sweep paved areas and rake clean landscaped areas. Remove waste, surplus materials, and rubbish from the site. Remove all temporary structures, barricades, project signs, fences and construction facilities. Submit a list of completed clean-up items on the day of final inspection.

EXHIBIT 1

***SAMPLE***

Red Zone Meeting Checklist

**Date**:_____

| | |
|---|---|
| **Contract No.** | |
| **Description / Location** | |
| **Contractor** | |
| **Contracting Officer** | |

| **Action** | **Completion Milestone** | √ |
|---|---|---|
| Inspections | | |
| Fire | | |
| Safety | | |
| Pre-final | | |
| Mechanical Test & Balance | | |
| Commissioning | | |
| Landscaping Complete | | |
| Erosion Control | | |
| Beneficial Occupancy Date (BOD) | | |
| Furniture Installation | | |
| Comm Installation | | |
| As-Built Drawings | | |
| Provide all O&M manuals, tools, shop drawings, spare parts, etc. to customer | | |
| Training of O&M Personnel | | |
| Provide Warranty documents to Customer | | |
| Contract completion | | |

| | | |
|---|---|---|
| Ribbon cutting | | |
| Payroll Clearances | | |
| DD Form 2626 - Construction Contractor Performance Evaluation | | |
| DD Form 2631 – A-E Performance Rated after Construction | | |
| Status of Pending Mods and REA's/Claims | | |
| Final Payment Completed | | |
| Release of Claims | | |
| Return of Unobligated Funds | | |
| Move Project from CIP to General Ledger | | |
| Financial completion | | |

End of Section 01 78 02.00 10

**SECTION 01 10 00.01**
REV 2.14 –01 JULY 2009

**TASK ORDER STATEMENT OF WORK**

**1.0 PROJECT OBJECTIVES**

1.1. SECTION ORGANIZATION

**2.0 SCOPE**

2.1. UNACCOMPANIED ENLISTED PERSONNEL HOUSING

2.2. SITE

2.3. GOVERNMENT-FURNISHED GOVERNMENT INSTALL EQUIPMENT (GFGI)

2.4. FURNITURE REQUIREMENTS

**3.0 UNACCOMPANIED ENLISTED PERSONNEL HOUSING**

3.1. GENERAL REQUIREMENTS

3.2. FUNCTIONAL AND AREA REQUIREMENTS

**4.0 APPLICABLE CRITERIA**

4.1. INDUSTRY CRITERIA

4.2. MILITARY CRITERIA

4.3. PRECEDENCE

**5.0 GENERAL TECHNICAL REQUIREMENTS**

5.1. SITE PLANNING AND DESIGN

5.2. SITE ENGINEERING

5.3. ARCHITECTURE AND INTERIOR DESIGN

5.4. STRUCTURAL DESIGN

5.5. THERMAL PERFORMANCE

5.6. PLUMBING

5.7. ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

5.8. HEATING, VENTILATING AND AIR CONDITIONING

5.9. ENERGY CONSERVATION

5.10. FIRE PROTECTION

5.11. SUSTAINABLE DESIGN

5.12. CONSTRUCTION AND DEMOLITION (C&D) WASTE MANAGEMENT

5.13. SECURITY (ANTI-TERRORISM STANDARDS)

**6.0 PROJECT SPECIFIC REQUIREMENTS**

6.1. GENERAL

6.2. APPROVED DEVIATIONS

6.3. SITE PLANNING AND DESIGN

6.4. SITE ENGINEERING

6.5. ARCHITECTURE

6.6. STRUCTURAL DESIGN

6.7. THERMAL PERFORMANCE

6.8. PLUMBING

6.9. SITE ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.10. FACILITY ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.11. HEATING, VENTILATING AND AIR CONDITIONING

6.12. ENERGY CONSERVATION

6.13. FIRE PROTECTION

6.14. SUSTAINABLE DESIGN

6.15. ENVIRONMENTAL

6.16. PERMITS

6.17. DEMOLITION

6.18. ADDITIONAL FACILITIES

## 1.0 PROJECT OBJECTIVES

The project objective is to design and construct facilities for the military that are consistent with the design and construction practices used for civilian sector projects that perform similar functions to the military projects. For example, a Company Operations Facility has the similar function as an office/warehouse in the civilian sector; therefore the design and construction practices for a company operations facility should be consistent with the design and construction of an office/warehouse building.

**Comparison of Military Facilities to Civilian Facilities**

| Military Facility | Civilian Facility |
|---|---|
| Unaccompanied Enlisted Personnel Housing (UEPH) | Apartment |

It is the Army's objective that these buildings will have a 25-year useful design life before a possible re-use/re-purpose or renovation requirement, to include normal sustainment, restoration, modernization activities and a 50-year building replacement life. Therefore, the design and construction should provide an appropriate level of quality to ensure the continued use of the facility over that time period with the application of reasonable preventive maintenance and repairs that would be industry-acceptable to a major civilian sector project OWNER. The site infrastructure will have at least a 50-year life expectancy with industry-accepted maintenance and repair cycles.

The project site should be developed for efficiency and to convey a sense of unity or connectivity with the adjacent buildings and with the Installation as a whole.

Requirements stated in this contract are minimums. Innovative, creative, and life cycle cost effective solutions, which meet or exceed these requirements are encouraged. Further, the OFFEROR is encouraged to seek solutions that will expedite construction (panelization, pre-engineered, etc.) and shorten the schedule. **The intent of the Government is to emphasize the placement of funds into functional/operational requirements. Materials and methods should reflect this by choosing the lowest Type of Construction allowed by code for this occupancy/project allowing the funding to be reflected in the quality of interior/exterior finishes and systems selected.**

### 1.1. SECTION ORGANIZATION

This Section is organized under 6 major “paragraphs”.

(1) Paragraph 1 is intended to define the project objectives and to provide a comparison between the military facility(ies) and comparable “civilian” type buildings.

(2) Paragraph 2 describes the scope of the project.

(3) Paragraph 3 provides the functional, operational and facility specific design criteria for the specific facility type(s) included in this contract or task order.

(4) Paragraph 4 lists applicable industry and government design criteria, generally applicable to all facility types, unless otherwise indicated in the Section. It is not intended to be all-inclusive. Other industry and government standards may also be used, where necessary to produce professional designs, unless they conflict with those listed.

(5) Paragraph 5 contains Army Standard Design Criteria, generally applicable to all facility types, unless otherwise indicated in the Section.

(6) Paragraph 6 contains installation and project specific criteria supplementing the other 5 paragraphs.

## 2.0 SCOPE (REV 3.15 – 28 FEB 2010)

### 2.1. UNACCOMPANIED ENLISTED PERSONNEL HOUSING (UEPH)

Provide Unaccompanied Enlisted Personnel Housing (UEPH) facilities. This project type is to house single soldiers and is intended to be similar both functionally and technically to similar housing in the private sector community surrounding the Installation.

Number of single personnel to be housed is 1440

Maximum gross area 527,040 square feet.

2.2. SITE:

Provide all site improvements necessary to support the new building facilities. Refer to Paragraph 6.

Approximate area available 9.00 acres

2.3. GOVERNMENT-FURNISHED GOVERNMENT-INSTALLED EQUIPMENT (GFGI)

Coordinate with Government on GFGI item requirements and provide suitable structural support, brackets for projectors/VCRs/TVs, all utility connections and space with required clearances for all GFGI items. All Computers and related hardware, copiers, faxes, printers, video projectors, VCRs and TVs are GFGI.

The following are also GFGI items: No Additional Requirements

2.4. FURNITURE REQUIREMENTS

A Furniture, Fixtures & Equip design and package is NOT required for this project. However, Structural Interior Design (SID) is required for all facility types regardless of the requirements for the FF&E design and package. The basic space planning for the anticipated FF&E requirements in conjunction with the functional layout of the building and design issues such as life safety, privacy, acoustics, lighting, ventilation, and accessibility is still required as part of the SID submittal.

2.5. NOT USED

## 3.0 UNACCOMPANIED ENLISTED PERSONNEL HOUSING (UEPH) (REV 2.18 – 28 FEB 2010)

### 3.1. GENERAL REQUIREMENTS

The Army requires an apartment complex of two-bedroom, one-bath dwelling units with kitchen (1+1E module) similar in features, standards and layout to apartment complexes in the surrounding community. Maximize the space inside the individual dwelling units versus providing additional spaces not listed in the functional requirements in this section. Building circulation is required to be through the use of interior corridors/breezeways or garden style apartments, where circulation is minimized. Exterior egress balconies are prohibited; this does not preclude apartments designed with exterior entry landings. Choice of breezeways and exterior entry landings shall be predicated upon the weather criteria of the specific geographic area. Breezeways and exterior entry landings shall be designed to preclude snow and ice infiltration/accumulation. Building spaces and areas are as indicated in the text below. Coordinate the site design with the building described in this Section. Specific site requirements that affect the design and construction of the site appear in 01 10 00-6.0.

### 3.2. FUNCTIONAL AND AREA REQUIREMENTS

The overall building gross area is based on allocating each occupant 366 gross square feet for buildings up to three stories or 388 gross square feet for buildings over three stories. For Installations in Alaska the overall building gross area is based on allocating each occupant 388 gross square feet for all barracks building, irrespective of building height. The gross square feet per occupant includes the total area of all functional areas required in the building, including all dwelling units, common areas, canopies, and support areas, e.g. stairways, elevators, foyers, corridors, public toilets, janitor's closets, utility room spaces.

(a) Elevators: Provide elevators for buildings that exceed three stories only. Provide elevator system that complies with ASME A17.1 and ASME A17.2.1 in their entirety, and additional requirements specified herein. The first elevator shall be centrally located and shall have a minimum rated load-capacity of 3500 lb (1588 kg), with center opening doors and interior dimensions sized to accommodate a fully extended Emergency Medical Services (EMS) gurney and four average size adults. Gurney size shall be based on the "STRYKER Power-PRO XT" gurney. An additional elevator as specified above shall be provided for every additional one hundred (100) persons or fraction thereof, over the first two hundred (200) persons the building is designed to accommodate, unless a traffic analysis determines otherwise. Such traffic analysis shall be included in the Design Analysis. Elevator interior walls, ceiling, doors and fixtures shall have a satin No. 4 stainless steel finish. Floor finish shall be vinyl composition tile as specified in Paragraph 3.4.5.2. (b). All elevators shall be furnished with removable hanging protective pads and fixed hooks to facilitate conversion to use for moving freight.

Elevator Inspector: The Elevator Inspector shall be certified in accordance with the requirements of ASME A17.1 and ASME QEI-1 and licensed in elevator inspection by the State where project is located. The Certified Elevator Inspector shall inspect the installation of the elevator(s) to assure that the installation conforms with all contract requirements. The Elevator Inspector shall be directly employed by the Prime Contractor and shall be independent of the Elevator System Manufacturer and the Elevator System Installer. The Elevator Inspector shall witness the acceptance inspections and tests, approve all results and sign and certify the successful results. The Elevator Inspector, after completion of the acceptance inspections and tests, shall certify in writing that the installation is in accordance with the contract requirements. The Elevator Inspector shall bring any discrepancy, including any safety related deficiencies, to the attention of the Contracting Officer in writing, no later than three working days after the discrepancy is discovered.

(b) Gross building area definition: Gross building area is measured to the outside face of exterior enclosure walls. Gross area includes floor areas, penthouses, mezzanines, and other spaces as follows:

(1) Areas calculated as half space. Gross building area shall be calculated in accordance with Appendix Q, with the following exceptions in accordance with TI 800-01 Design Criteria – Appendix B, UEPH:

i. All stairs and elevator shafts count as half space for each floor they serve.

ii. Interior public corridors/breezeways will be calculated as half space.

(2) Excluded space: The following spaces are excluded from gross area calculations: Attic areas where average clear height does not exceed 7 feet; crawl spaces; exterior uncovered loading platforms; open courtyards; normal roof overhangs and soffits for weather protection; uncovered ramps and steps; utility tunnels; raceways; mechanical equipment platforms and catwalks.

(3) Gross area limitations: Maximum authorized gross building areas for each facility is included in this paragraph. Proposals that exceed authorized gross area limitations may be considered non-conforming.

(c) Net area definition: Net area is measured to the inside face of the room or finish walls.

(d) Net Area Requirements: Net area requirements for programmed spaces are included in this chapter. If net area requirements are not specified, the space shall be sized to accommodate the required function and to comply with code requirements, overall gross area limitations, and any other requirement of this RFP (for example, area requirements for corridors, stairs, and mechanical rooms will typically be left to the discretion of the offeror).

3.2.1. ACCESSIBILITY REQUIREMENTS

Able-bodied soldiers occupy and manage UEPH facilities. The Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) requirements does not apply to UEPH facilities, except as follows:

3.2.1.1. Site Plan Design and Construction:

(a) Provide ADA/ABA compliant access from the parking lot to the building.

(b) Provide two (2) ADA/ABA compliant vehicle parking stalls for each barracks building for visitor parking.

(c) Provide handicapped vehicle parking signage and pavement markings.

3.2.1.2. Facility Design and Construction:

(a) The main building entrance on the ground level and at least one emergency egress, designed per applicable code, shall be handicapped accessible. Electronic exterior door openers with push button control are required for handicapped accessibility.

(b) Provide ADA/ABA clearances and door accesses in the building main entry/vestibule being used by visitors.

(c) If a lobby is required by the RFP, provide a handicapped accessible drinking fountain in the lobby.

(d) If a lobby is required by the RFP, provide handicapped accessible public toilet(s), which may be unisex, in the lobby area.

3.2.2. Dwelling Units:

3.2.2.1. Bedrooms: Each dwelling unit shall have two bedrooms, each with a minimum net area of 140 square feet and a maximum net area of 183 square feet. Bedrooms shall be equal in size and similar in configuration. Each bedroom shall have a walk-in closet directly adjacent. Each walk-in closet shall have a net area of 32 square feet, and shall be furnished with hanger rods and shelves. Closet shelf shall be capable of supporting a minimum of 30 pounds per linear foot. Closet shelf shall be 15 inches deep and top of shelf shall be set at 70 inches above closet finish floor. Closet rod and bracket system shall be capable of supporting a minimum of 30 pounds per linear foot. Provide a minimum of 78 linear inches of rod and shelf with no rod and shelf being less than 48 inches long. Each closet door shall have a Function (F75), Grade 1 closet latch, and be equipped with padlock eyes so the occupant can provide his/her own padlock. One padlock eye shall be mortised into and screw attached flush with door edge on the latch side of the door and the second padlock eye shall be mortised and welded flush into the inside face of the door frame jamb. Padlock eye shall be fabricated to accommodate padlock shackle up to 1/4" diameter. Padlock eye color shall match door frame color. Locate padlock eye at between 4’-6”’ and 5’-6” AFF. Location of padlock eyes shall be at the same height in all modules. Each closet door shall have a Type 304 satin finished, stainless steel, robe hook mounted on the closet side of the door. Each closet door shall have a 16 inches wide by 70 inches high by ¼ inch thick, select float glass, full length mirror, in a one piece ½ inch by ½ inch by ½ inch Type 304 satin finished, stainless steel frame, with mitered corners, mounted on the bedroom side of the door. Bottom of mirror shall be located at 6 inches above finish floor. Bedroom shall be able to accommodate the following furniture with adequate circulation for one occupant:

- One twin bed with headboard and footboard 40” wide x 85 long”.
- One entertainment center 36” wide x 25” deep x 76” high.
- One chest of drawers 36” wide x 20” deep.

- One nightstand 26” wide x 20” deep.
- One desk 60” wide x 26” deep with retractable keyboard tray and overhead study carrel.
- One desk chair 19 ½” wide by 18” deep.

3.2.2.2. Kitchen: Each dwelling unit shall have a full kitchen with adequate space and circulation to accommodate a GFGI full size refrigerator 28 inches wide, a CFCI built-in two-burner electric cooktop with a CFCI built-in combination vent hood and convection/microwave oven, with standard height base cabinet system, wall cabinet system and countertops for food storage and preparation. Provide a minimum of two 18 inches wide drawer units in the kitchen base cabinet system. Provide utility connections and casework to accommodate appliances listed above. Provide area for recyclables receptacle and kitchen waste receptacle. Furnish and install a single bowl stainless steel kitchen sink. Provide utility connections and casework to accommodate future installation of a dishwasher. Future dishwasher space shall be furnished with a removable built-in full width shelf dividing it into two equal spaces, and a pair of removable swing doors matching the rest of the kitchen cabinetry. Provided a minimum of twelve (12) linear feet of base cabinet systems with twelve (12) linear feet of standard height counter and twelve (12) linear feet of wall cabinet systems. Twelve (12) linear feet of standard height counter includes required sink. In addition to the twelve (12) linear feet of standard height counter, kitchen layout shall accommodate a minimum of 36 linear inches of counter style seating and dining for~~Kitchen layout shall accommodate counter space seating and dining of two people, or provide space for a 36 inch diameter dining table with two chairs outside of the kitchen area.~~

3.2.2.3. Bathroom: Each dwelling unit shall have one full bath, with an elongated floor mounted flush tank type vitreous china water closet, porcelain enameled cast-iron or enameled steel tub/shower, fixed shower head, lavatory/vanity with storage cabinets below, two minimum 16-inches wide by 24 inches high recessed mirrored medicine cabinet, with adjustable shelves, mounted on the backwall of the vanity. Medicine cabinet construction shall be heavy gauge steel, all welded, with a powder-coated finish. Mirror shall be ¼ inch thick select float glass in a one piece ½ inch by ½ inch by ½ inch Type 304 satin finished, stainless steel frame, with mitered corners. Provide a minimum of two towel bars. Spray end of shower head shall be set at 78 inches above finish height of tub drain. Fiberglass or acrylic tub-surround units are required. Lavatory/vanity shall be separated from the tub/shower-water closet enclosure.

3.2.2.4. Not Used

3.2.3. Common Areas:

3.2.3.1. Lobby: Lobby shall meet the accessibility requirements stated in 01 10 00-3.2.1 above.

3.2.3.2. Public Toilet(s): Public toilets, which may be a single, unisex toilet, shall be located adjacent to the Lobby area and shall comply with the ADA accessibility requirements. If either a CQ station or a lobby is provided, a public toilet shall be included.

3.2.3.3. Not Used

3.2.3.4. Centralized Laundry: Locate a minimum of one laundry room in a centralized location, on each floor of each barracks building. Interior of laundry rooms shall be visible from the corridor through glazed picture windows. Picture window glazing shall be laminated glass. Design-Build Contractor may propose an alternate solution that will provide visual monitoring of the laundry room in-lieu of using ~~a~~ picture windows. Laundry room entry shall provide a clear opening 36 inches wide minimum. Size self-serve laundry facilities to accommodate a combined total of no fewer than one commercial washer per 12 residents on each floor and one commercial dryer per 8 residents on each floor. Washers and dryers are GFGI. Fixed heavy gauge stainless steel clothes folding/hanging tables, stainless steel utility sinks and laundry supplies vending area are required features of centralized laundry facilities. Each fixed heavy gauge stainless steel clothes folding/hanging table shall be 2'-0" deep by 5'-0" wide. Provide one fixed heavy gauge stainless steel clothes folding/hanging table per 48 residents on each floor. Provide power receptacles for washers, dryers and laundry supplies vending machines. Provide a minimum of one convenience duplex power receptacle on each wall. Provide water and drain connections for all washers. Provide individual vent connections for all dryers. Locate laundry rooms on exterior wall so that dryer exhaust can be vented directly to the exterior.

3.2.3.5. Vending Area: Provide a minimum of one vending area on the ground floor of each barracks building. Provide additional ventilation/exhaust to maintain vending areas temperature at levels specified for corridors. Each Vending Area shall be sized to accommodate one ice cube machine-dispenser designed for hotel type ice bucket filling, capable of producing minimum 250 pounds of regular ice cubes in 24 hours, with 180 pound storage capacity, and one full-size vending machine per 80 – 100 residents, or space for a minimum of three full-size vending machines, which ever is greater. Provide power receptacles for vending machines and ice cube machine-dispensers. Provide water and drain connections for ice cube machine-dispensers. Provide floor drain for ice cube machine-dispensers. Locate vending area in a central location that is easily monitored. Vending Machines and ice cube machine-dispenser shall be GFGI.

3.2.3.6. Recyclables Storage: Provide one Recyclables Storage per building. Locate the Recyclables Storage on the first floor with access to the complex trash/recyclables dumpster area. Recyclables Storage shall be fully enclosed and ventilated. Recyclables Storage shall be sized to accommodate a minimum of six (6) fifty-gallon barrel sized recyclable containers, with adequate circulation space to allow access to move each container in and out of the Recyclable Storage with a dolly, without having to move the other containers.

3.2.3.7. Janitor's Closet: Provide a minimum of one Janitor's Closet per floor. Each Janitor's Closet shall have a minimum area of 30 square feet. Each Janitor closet shall have a mop sink, mop rack, and space for buckets, vacuum and storage for janitorial supplies. Provide a minimum of six linear feet of 18 inch deep, heavy duty, stainless steel shelving for storage of janitorial supplies.

3.2.3.8. Mechanical, Electrical, and Telecommunications Rooms: Mechanical rooms shall accommodate space for equipment maintenance/repair access without having to remove other equipment. Mechanical, electrical and telecommunications rooms shall be keyed separately for access by Installation maintenance personnel. Filter changes and preventative maintenance shall be performed without requiring access to the dwelling units. First floor exterior access is required for centralized mechanical and electrical rooms. All telecommunications rooms shall be conditioned space. Refer to Mechanical and Electrical Sections for additional information.

3.2.3.9. Mail Access Area: A mail access area shall be designed and constructed as a part of this project. Mail access area shall include one USPS-approved combination lock type mailbox per resident, and a minimum of one USPS-approved two-key parcel locker per 40 residents. The numbering sequence shall be coordinated with the user. Mail access area shall be located on an exterior wall, protected from the elements and shall conform to the requirements of ATFP UFC 4-010-01

3.2.3.10. Mudroom:

Provide an enclosed centralized location close to main building entry, with direct exterior access for soldiers to rinse mud off field gear, boots and clothing before laundering. Provide one rinsing station per 30 persons. Each rinsing station shall be furnished with a utility sink and a hosed hot and cold water faucet.

3.2.3.11. Activity Room: Provide a minimum of one activity room centrally located on the ground floor of one barracks building in each cluster of four barracks buildings. Activity room shall be sized to provide space for a 55 inch projection television, seating for 25 personnel and one standard size pool table, with required clearances. Provide utility connections, electrical and cable television, for the projection television.

3.2.3.12. Vestibule: Provide an enclosed transition space between the exterior and the lobby or building interior. Provide a minimum of 7 feet clearance between interior and exterior doors.

3.3. SITE REQUIREMENTS

3.3.1. Walks: Construct pedestrian walks within the designated construction area and connect to existing sidewalks, where applicable.

(a) Sidewalks shall be a minimum of 6 feet wide. Sidewalks designed to support emergency vehicle traffic shall be a minimum of 20 feet wide per NFPA requirements. Sidewalks designed to support service vehicle traffic shall be a minimum of 10 feet wide. Construct walks paralleling buildings beyond the eave drip line and at least 5 feet from the foundation. Restrict vehicular access to the sidewalks, as required by UFC 4-010-01.

(b) Construct non-vehicular pedestrian sidewalks of Portland Cement Concrete having a minimum nominal thickness of 4 inches. Design joint patterns uniformly, symmetrical, and in accordance with the American

Association of State Highway and Transportation Officials (AASHTO) standards. For joints, do not exceed the length to width ratio of 1.25 for non-reinforced pavements.

(c) Sidewalks designed to support emergency and service vehicle traffic will be considered roadway pavements and shall be designed to meet the AASHTO standards. Construct vehicular supported walks of Portland Cement Concrete having a minimum nominal thickness of 7 inches. Design joints uniformly, symmetrical, and in accordance with AASHTO standards. Do not exceed the length to width ratio of 1.25 for non-reinforced pavements.

3.3.2. Site Structures and Amenities

Dumpster Area: The Contractor shall locate, design, and construct the dumpster enclosure area(s) and screening. Dumpster screening shall be aesthetically and architecturally compatible with the building it serves and shall be designed in accordance with the Installation's guidelines. Locate the dumpster areas in accordance with UFC 4-010-01 "DoD Minimum Antiterrorism Standards for Buildings". Position the GFGI dumpsters outside of restricted areas to allow for servicing activities.

3.3.3. Site Functional Requirements

(a) Privately Owned Vehicle (POV) Parking: The Contractor shall design and construct the POV parking, within the designated construction area. Base the location and design of the POV parking area(s) on the Installation's site constraints. The Contractor shall ensure that the location of parking complies with UFC 4-010-01. See paragraph 5.2.3, "VEHICLE PAVEMENTS", for additional information. Provide POV parking spaces for 70 percent of the personnel.

(b) Service Drives: The Contractor shall provide service drives to each building. Locate the drives in accordance with UFC 4-010-01. Restrict access to the drives, where applicable, as required by UFC 4-010-01. Design the pavements as required by paragraph 5.2.3, "VEHICLE PAVEMENTS". The minimum service drive width shall be 10 feet. The Contractor shall design and construct drives with curb and gutter when necessary for drainage purposes.

(c) Fire Access Lanes: The Contractor shall provide fire access lanes. Access must be provided to three sides, minimum. Access must be within 33 feet of a building's entrance. Design the fire access lanes in accordance with NFPA 1, UFC-3-600-01, and the installation's requirements.

3.4. ARCHITECTURAL REQUIREMENTS

3.4.1. Hardware

3.4.1.1. Not Used

3.4.1.2. Finish Hardware: All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided, the Installation keying system is I/C-7 pin Insta-Key. Cores shall have not less than seven pins; cylinders shall have key-removable type cores. Disassembly of knob or lockset shall not be required to remove core from lockset. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. HVAC terminal units that are accessed from a central corridor shall have a deadbolt to minimize protrusion into corridor. Plastic cores are unacceptable. Provide closers for all exterior doors, all doors opening to corridors and as required by codes. Exit devices shall be installed on all building egress doors.

3.4.1.3. Auxiliary Hardware: Provide wall or floor stops for all exterior doors that do not have overhead holder/stops. Provide other hardware as necessary for a complete installation.

3.4.1.4. Hardware For Fire Doors: Hardware for fire doors shall be installed in accordance with the requirements of applicable codes. Exit devices installed on fire doors shall have a visible label bearing the marking "Fire Exit Hardware". Other hardware installed on fire doors, such as locksets, closers, and hinges shall have a visible label or stamp indicating that the hardware items have been approved by an approved testing agency for installation on fire-rated doors. Hardware for smoke-control door assemblies shall be installed in accordance with applicable codes.

3.4.1.5. Key Card Access System: A Programmable Electronic Key Card Access System shall be provided on all exterior entry/egress doors, dwelling unit doors, bedroom doors and centralized laundry doors (if centralized laundries are required by RFP). The Installation does not have a single manufacturer established for this equipment at this time. The minimum operability requirement is a key card access system that provides a single key card for the individual soldier, programmable to open all exterior entry/egress doors, the laundry room (if a centralized laundry is provided), the soldier's dwelling unit door, and the soldier's bedroom door. A Programmable Electronic Key Card Access System Manufacturer's Representative shall install all hardware and software necessary for the operation of the Electronic Key Card Access System and program all locksets. Provide six (6) blank key cards for each personnel each building is designed to accommodate. The Design-Build Contractor shall furnish in three-ring binders, one full set of the system manufacturer's system training manual, system maintenance manual, and one training video (in format provided by the system manufacturer), with each system installed. The Programmable Electronic Key Card Access System Manufacturer's Representative shall provide two (2) separate 4-hour classes of training for the user on software use, programming locks, encoding cards and printing reports. Each building shall be furnished with a complete stand-alone key card system package. System shall be capable of being compartmentalized so that each building has only the capability to produce key cards for that building. Provide a two (2) year warranty on the system and all components and locksets. All special tools, software, connecting cables and proprietary equipment necessary for the maintenance, testing, and reprogramming of the system shall be furnished to the Contracting Officer Representative.

3.4.2. Special Acoustical Requirements

3.4.2.1. Exterior walls and roof/floor/ceiling assemblies, doors, windows and interior partitions shall be designed to provide for attenuation of external noise sources such as airfields in accordance with applicable criteria, but no less than the following:

(a) Interior partitions – STC 49

(b) Exterior walls – STC 49

(c) Floors separating sleeping spaces – STC 50 / IIC 55

(d) Module entry, bedroom and bathroom doors – STC 25

3.4.2.2. Sound conditions (and levels) for interior spaces, due to the operation of mechanical and electrical systems and devices, shall not exceed levels as recommended by ASHRAE handbook criteria. Provide acoustical treatment for drain lines and other utilities to prevent noise transmission into the interior of dwelling units

3.4.3. Exterior Design Objectives

Provide durable and easily maintainable materials. Do not use exterior materials that require periodic repainting or similar refinishing processes. Material exposed to weather shall be factory pre-finished, integrally colored or provided with intrinsic weathering finish.

3.4.3.1. Exterior Walls: Where Exterior Insulation and Finish Systems (EIFS), or any other material except CMU or other Masonry material is used as exterior finish material, it shall be in conjunction with a Masonry wainscot. EIFS shall be "high-impact" type and shall be "drainable" type. Masonry units shall be tested for efflorescence. Efflorescence testing shall conform to the provisions of ASTM C 67. CMU construction shall comply with the provisions of ASTM C 1400.

3.4.3.2. Roof System: Minimum roof slope for membrane roof systems shall be 1/4 inch per foot. Minimum roof slope for pitched roof systems shall be 3 inches per foot. Membrane roof systems shall be fully adhered. Structural standing seam metal roofs shall comply with the requirements of ASTM E 1592. Roof system shall be Underwriters Laboratory (UL 580 Class 90) rated or Factory Mutual Global (FM) I-90 rated. Roof system shall comply with applicable criteria for fire rating.

(a) Roof Mounted Equipment: For roof mounted equipment, provide permanent access walkways and platforms to protect roof. Roof mounted equipment on pitched roof systems is unacceptable. Roof mounted equipment on membrane roof systems shall be completely screened by the roof parapet.

(b) Roof access from building exterior is prohibited.

3.4.3.3. Trim and Flashing: Gutters, downspouts, and fascias shall be factory pre-finished metal and shall comply with SMACNA Architectural Sheet Metal Manual.

3.4.3.4. Bird Habitat Mitigation: The Contractor shall provide details in the design necessary to eliminate the congregating and nesting of birds at, on, and in the facility.

3.4.3.5. Exterior Doors and Frames:

(a) Main Entrance Doors: Provide aluminum storefront doors and frames with Architectural Class 1 anodized finish, fully glazed, with medium or wide stile for entry into lobbies or corridors. Provide doors complete with frames, framing members, subframes, transoms, sidelights, trim, applied muntins, and accessories. Framing systems shall have thermal-break design. Storefront systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria

(b) Other Exterior Doors: Provide galvanized insulated hollow metal exterior doors for entry to all spaces other than corridors, lobbies, or reception/waiting rooms. Doors and frames shall comply with applicable codes and criteria. Doors shall be minimum Level 3, physical performance Level A, Model 2 flush; A60 galvannealed. Frames shall be 12-gauge, with continuously welded mitered corners and seamless face joints. Doors and frames shall be constructed of hot dipped zinc coated steel sheet, complying with ASTM A653, Commercial Steel, Type B, minimum A40 coating weight; factory primed. Fire-rated openings shall comply with applicable codes, and the requirements of the labeling authority. Door and frame installation shall comply with applicable codes and criteria.

3.4.3.6. Exterior Windows: Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. Each bedroom shall have at least one exterior window. Window shall meet egress requirements of NFPA 101 and International Building Code. All bedroom windows shall be sealed windows. Windows shall not open to corridor, balcony or landing. Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria. Window sills shall be designed to discourage bird nesting.

3.4.3.7. Exterior Glass and Glazing: Material and installation shall comply with applicable codes and criteria.

3.4.3.8. Thermal Insulation: Provide exterior wall, floor, and roof/ceiling assemblies with thermal transmittance (U-values) required to comply with the proposed energy calculations for the facilities. Insulation shall not be installed directly on top of suspended acoustical panel ceiling systems.

3.4.3.9. Exterior Louvers: Exterior louvers shall have bird screens and shall be designed to exclude wind-driven rain. Exterior louvers shall be made to withstand wind loads in accordance with the applicable codes. Wall louvers shall bear the Air Movement & Control Association (AMCA) International certified ratings program seal for air performance and water penetration in accordance with AMCA 500-D and AMCA 511. Louver finish shall be factory applied.

3.4.4. Interior Design Objectives

General: Provide sustainable materials and furnishings that are easily maintained and replaced. Maximize use of daylighting. Provide interior surfaces that are easy to clean and light in color. Design barracks interior with a residential ambience.

3.4.4.1. Signage: Room signage shall conform to the Housing Automated Management System, (HOMES4). At each dwelling unit, provide two (one on each side of entry door) dwelling unit/room number and changeable two-line message strip signage. Dwelling units shall be sequentially numbered. For example, the first unit on the first floor shall be “101”, first unit on the second floor shall be “201”. Rooms shall be designated using the letters “A and B”. The room designation is determined by standing in the corridor facing the entry door of the dwelling unit, the bedroom on the left is “A” and the one on the right is “B”. The complete dwelling unit/room numbering shall be as in this example, first unit on the second floor “201A and 201B”. Changeable message strip signs shall be of same construction as standard room signs to include a clear sleeve that will accept a paper or plastic insert with identifying changeable text. The insert shall be prepared typeset message photographically enlarged to size and mounted on paper card stock.

3.4.4.2. Bulletin Boards: Provide one bulletin board centrally located on all floors. Bulletin board shall be 4'-0" high and 6'-0" wide. Bulletin boards shall have a header panel and shall have lockable, glazed doors

3.4.4.3. Corner Guards: Provide surface mounted, high impact resistant, integral color, snap-on type resilient corner guards, extending from floor to ceiling for wall/column outside corners in high traffic areas. Factory fabricated end closure caps shall be furnished for top and bottom of surface mounted corner guards.

3.4.4.4. Chair Rail: Chair rails shall be installed in areas prone to hi-impact use, such as corridors and lobby.

3.4.4.5. Casework: Provide cabinets complying with AWI Quality Standards. Countertops shall have waterfall front edge. Bathroom, kitchen and public toilet countertops shall have integral coved backsplash. Bathroom and public toilet (if required by RFP) vanity countertop shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material with waterfall front edge and integral coved backsplash.

3.4.4.6. Fire Extinguisher Cabinets and Fire Extinguisher Mounting Brackets: Furnish and install fire extinguisher cabinets and fire extinguisher mounting brackets as required by applicable codes and criteria. Furnish a list of installed fire extinguisher cabinets and mounting brackets (including location, size and type) to the Contracting Office Representative.

3.4.4.7. Interior Doors and Frames:

(a) Wood Doors: Provide flush solid core wood doors with Grade A hardwood face veneer for transparent finish. Stile edges shall be non-finger jointed hardwood compatible with face veneer. Provide flush solid core wood doors at doors within dwelling unit. Provide flush solid core wood doors at all dwelling unit entry.

(b) Insulated Metal Doors: Comply with applicable codes and criteria. Doors shall be minimum Level 3, physical performance Level, Model 2; factory primed. Provide insulated metal doors at utility rooms, janitor closets, module entry (if solid core insulated hollow metal door is required), and stairwell doors.

(c) Hollow Metal Frames: Comply with ANSI A250.8/SDI 100. Frames shall be minimum Level 3, 16 gauge, and shall be continuously welded, with mitered corners and seamless face joints; factory primed.

- Contractor's Option – Contractors have the option to furnish knockdown frames for closet and bathroom doors in the dwelling units. Continuously welded frames with mitered corners and seamless face joints at closets and bathroom doors in the dwelling units shall be considered betterments.

(d) Fire-rated and Smoke Control Doors and Frames: Comply with applicable codes, criteria and requirements of labeling authority.

(e) STC ratings shall be of the sound classification required and shall include the entire door and frame assembly.

(f) Each dwelling unit entry door shall be furnished with a brass peep hole door viewer with a viewing angle of 200 degrees minimum.

3.4.4.8. Window Treatment: Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Blinds in barracks bedrooms shall be room darkening mini blinds. Window stools shall be minimum ½ inch thick cast 100 percent acrylic polymer solid surfacing material. ~~Uniformity of window covering color and material shall be maintained throughout each building.~~

3.4.4.9. Mold and Mildew Mitigation: The Designer of Record shall provide details in the design analysis and design showing steps taken to mitigate the potential growth of mold and mildew in the facility.

3.4.4.10. Toilet Accessories: Furnish and install the items listed below and all other toilet accessories necessary for a complete and usable facility. All toilet accessories shall be Type 304 stainless steel with satin finish.

(a) Public Toilets (IF REQUIRED BY THE RFP): Toilet accessories shall conform to the requirements of the ADA and shall include, but are not limited to the following:

(1) Glass mirrors on stainless steel frame and shelf – at each lavatory

(2) Liquid soap dispenser – at each lavatory

(3) Combination recessed mounted paper-towel dispenser/waste receptacle

(4) Sanitary napkin disposal at each female\unisex toilet

(5) Recessed mounted lockable double toilet paper holder – at each water closet.

(6) Sanitary toilet seat cover dispenser – a minimum of one per toilet room

(7) Grab bars – as required by ADA

(b) Dwelling unit bathroom accessories shall at a minimum include:

(1) Two heavy duty towel bars – minimum 24 inches wide each

(2) Two recessed mounted mirrored medicine cabinets – at each lavatory. (See Section 01 10 00 Paragraph 3.2.2.3.)

(3) Two soap dish - at tub/shower

(4) One wall mounted retractable clothesline – across tub/shower

(5) Two combination soap dish/toothbrush holder – one at each medicine cabinet

(6) Double robe hook - on inside face of bathroom door

(7) Toilet paper holder – at each water closet.

(8) Curved shower curtain rod - extra heavy duty.

(9) Shower curtain – white anti-bacterial nylon/vinyl fabric shower curtain.

3.4.5. Finishes

Designers are not limited to the minimum finishes listed in this paragraph and are encouraged to offer higher quality finishes.

3.4.5.1. Minimum Paint Finish Requirements

(a) All paints used shall be listed on the "Approved product list" of the Master Painters Institute, (MPI). Application criteria shall be as recommended by Master Painters Institute (MPI) guide specifications for the substrate to be painted and the environmental conditions existing at the project site.

(b) Exterior surfaces, except factory pre-finished material or exterior surfaces receiving other finishes shall be painted a minimum of one prime coat and two finish coats. Paints having a lead content over 0.06 percent by weight of nonvolatile content are unacceptable. Paints containing zinc-chromate, strontium-chromate, mercury or mercury compounds, confirmed or suspected human carcinogens shall not be used on this project. Exterior paints and coating products shall be classified as containing low volatile organic compounds (VOCs) in accordance with MPI criteria. Application criteria shall be as recommended by MPI guide specifications. Provide an MPI Gloss Level 5 Finish (Semi-gloss), unless otherwise specified.

(c) Interior surfaces, except factory pre-finished material or interior surfaces receiving other finishes shall be painted a minimum of one prime coat and two finish coats. Paints having a lead content over 0.06 percent by weight of nonvolatile content are unacceptable. Paints containing zinc-chromate, strontium-chromate, mercury or mercury compounds, confirmed or suspected human carcinogens shall not be used on this project. Interior paints and coating products shall contain a maximum level of 150 g/l (grams per liter) of volatile organic compounds (VOCs) for non-flat coatings and 50 g/l of VOCs for flat coatings. Provide an MPI Gloss Level 5 Finish (Semi-gloss) in wet areas and a flat finish in all other areas.

3.4.5.2. Minimum Interior Finish Requirements

(a) Wall, ceiling and floor finishes shall conform to the requirements of the IBC, NFPA and UFC 3-600-01. Where code requirements conflict, the most stringent code requirement shall apply.

(b) Carpet shall not be used as a floor finish on this project. Vinyl composition tile (VCT) shall be a minimum 1/8 inch thick, conforming to ASTM F 1066, Class 2, through-pattern tile, Composition 1, asbestos free, with color and pattern uniformly distributed throughout the thickness of the tile.

(c) Walls: All wall finish shall be minimum 5/8” painted gypsum board, except where stated otherwise. All gypsum board shall achieve a score of 10, the highest level of performance for mold resistance under the ASTM D 3273 test method. All gypsum board shall be transported, handled, stored and installed in accordance with the GYPSUM ASSOCIATION – Guidelines For Prevention Of Mold Growth On Gypsum Board (GA-238-03). Use impact resistant gypsum board in corridors, storage rooms, stairwells and activity rooms and centralized laundries (if centralized laundries are required by RFP).

(d) All ceiling finishes shall be minimum 5/8” painted gypsum board, except where stated otherwise. All gypsum board shall achieve a score of 10, the highest level of performance for mold resistance under the ASTM D 3273 test method. All gypsum board shall be transported, handled, stored and installed in accordance with the GYPSUM ASSOCIATION – Guidelines For Prevention Of Mold Growth On Gypsum Board (GA-238-03).

| MINIMUM INTERIOR FINISHES | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FLOORS | | | | | BASE | | | WALLS | | CEILING | | | REMARKS |
| | RESILIENT FLOORING | PORCELAIN OR QUARRY TILE | CERAMIC TILE | RECESSED ENTRY MAT | SEALED CONCRETE | RESILIENT BASE | SANITARY COVE CERAMIC BASE | PORCELAIN OR QUARRY TILE | GYPSUM BOARD PAINT | CERAMIC | GYPSUM BOARD PAINT | ACOUSTICAL CEILING TILE | MINIMUM HEIGHT | |
| **COMMON AREAS** | | | | | | | | | | | | | | |
| LOBBY (IF REQUIRED BY RFP) | | ● | | | | | | ● | ● | | ● | ● | 9'-0" | SEE NOTE 6 |
| PUBLIC TOILET | | | ● | | | | ● | | ● | ● | ● | | 8’-0” | SEE NOTES 2, 3 AND 5 |
| VESTIBULES | | ● | | ● | | | | ● | ● | | ● | | 9'-0" | |
| MUDROOM (IF REQUIRED BY RFP) | | | ● | | | | ● | | ● | ● | ● | | 8’-0” | SEE NOTES 2 AND 5 |
| BOOT WASH (IF REQUIRED BY RFP) | | | | | ● | | | | | | | | - | |
| ACTIVITY ROOM (IF REQUIRED BY RFP) | | ● | | | | | | ● | ● | | ● | ● | 9’-0” | SEE NOTE 6 |
| MAIL ACCESS AREA | | ● | | | | | | ● | ● | | ● | | 8’-0” | IF LOCATED WITHIN BUILDING |
| STAIRS | ● | | | | ● | ● | | | ● | | ● | | 8’-0” | SEE NOTE 4 |
| CORRIDORS | ● | | | | | ● | | | ● | | ● | ● | 9'-0" | SEE NOTE 6 |
| VENDING | | | | | | | | | | | ● | | 8’-0” | SEE NOTE 1 |
| RECYCLABLES STORAGE | ● | | | | | ● | | | ● | | ● | | 8’-0” | SEE NOTE 1 |
| JANITOR CLOSETS | | | ● | | | | ● | | ● | ● | ● | | 8’-0” | SEE NOTE 2 |
| MECHANICAL | | | | | ● | ● | | | ● | | ● | | - | SEE NOTES 5 AND 7 |
| ELECTRICAL | | | | | ● | ● | | | ● | | ● | | -“ | |
| TELECOMMUNICATIONS | | | | | ● | ● | | | ● | | ● | | 9’-0” | |
| CENTRALIZED LAUNDRY (IF REQUIRED BY RFP) | | ● | | | | | | ● | ● | | ● | | 8’-0” | SEE NOTE 5 |
| | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DWELLING UNITS** | | | | | | | | | | | | | | |
| KITCHEN | ● | | | | | ● | | | ● | | ● | | 8'-0" | SEE NOTE 3 |
| BATHROOM | | | ● | | | | ● | | ● | ● | ● | | 8'-0" | SEE NOTES 2 AND 3 |
| BEDROOM | ● | | | | | ● | | | ● | | ● | | 9'-0" | |
| CLOSET | ● | | | | | ● | | | ● | | ● | | 8'-0" | |

1. FINISHES IN VENDING OR RECYCLABLES STORAGE AREA SHALL MATCH FINISHES IN ADJACENT SPACE.

2. ALL WET WALLS SHALL HAVE A 4'-0" HIGH CERAMIC TILE WAINSCOT. BATHTUB SURROUND SHALL BE AS SPECIFIED IN PARAGRAPH 3.2.2.3.

3. ALL KITCHEN AND BATHROOM COUNTERS SHALL HAVE A MINIMUM OF 4" HIGH BACKSPLASH.

4. STAIR LANDING SHALL BE RESILIENT FLOORING OR SEALED CONCRETE. TREADS SHALL BE RESILIENT FLOORING OR SEALED CONCRETE, PROVIDE SLIP RESISTANT NOSING. RISERS SHALL BE PAINTED STEEL OR RESILIENT FINISH AS REQUIRED FOR STAIR CONSTRUCTION TYPE.

5. PROVIDE FLOOR DRAIN IN CENTER OF ROOM. SLOPE FLOOR TO DRAIN IN ALL ROOMS WITH FLOOR DRAIN

6. UP TO 50% OF CEILING AREA MAY BE ACOUSTICAL CEILING TILE. ALL ACOUSTICAL CEILING TILE SHALL BE INSTALLED WITH HOLD DOWN CLIPS TO PREVENT UPWARD MOVEMENT.

7. PROVIDE FLOOR DRAIN IN CENTER OF ROOM. DOES NOT APPLY TO DWELLING UNIT MECHANICAL CLOSETS.

3.5. STRUCTURAL REQUIREMENTS

Design and construct as a complete system in accordance with APPLICABLE CRITERIA.

3.5.1. Design live loads shall be per the IBC but not lower than the following minimums.~~Live Load shall bedesigned per the IBC but not lower than the following minimums.~~

(a) Elevated ~~slabs~~floors 60 pounds per square foot (psf) minimum

(b) Slab on grade 150 psf minimum

(c) Centralized laundry area (if required by RFP) 150 psf, (but not less than actual equipment loads)

3.6. COMPLIANCE WITH THE ENERGY POLICY ACT OF 2005 (EPACT 2005)

3.6.1. EPACT 2005 Requirement

The building, including the building envelope, HVAC systems, service water heating, power, and lighting systems shall be designed to achieve an energy consumption that is at least 30% below the consumption of a baseline building meeting the minimum requirements of ANSI/ASHRAE/IESNA Standard 90.1~~-2004~~ (see paragraph 5.9 Energy Conservation)

3.6.2. Target Energy Consumption Budget

The target energy consumption budget (excluding plug loads) for this facility located in Climate Zone 3A is 50 kBTU per $ft^2$ per year or less. ~~The use of the Prescriptive Technology Solution Set, shown below, will result in an annual energy consumption less than or equal to the target energy budget figure.~~

3.6.3. Prescriptive Path (Use of Technology Solution Set)

The technology solution set shown in the table below contributes to achievement of~~achieves~~ the above energy performance and life cycle cost effectiveness requirements for a UEPH facility in the indicated DOE climatic zone.

**Climate Zone 3A, Prescriptive Technology Solution Table**

| Item | Component | 30% Solution |
|---|---|---|
| **Roof** | Attic | R-40 |
| | Surface reflectance | 0.27 |
| **Walls** | Light Weight Construction | R-20 |
| **Exposed Floors** | Mass | R-10 c.i. |
| **Slabs** | Unheated | NR (2) |
| **Doors** | Swinging | U-0.70 |
| | Non-Swinging | U-1.45 |
| **Infiltration** | | 0.25 cfm/ft$^2$ @ 75 Pa (3) |
| **Vertical Glazing** | Window to Wall Ratio (WWR) | 10% - 20% |
| | Thermal transmittance | U-0.45 |
| | Solar heat gain coefficient (SHGC) | 0.31 |
| **Interior Lighting** | Lighting Power Density (LPD) | 0.9 W/ft$^2$ |
| | Ballast | Electronic ballast |
| **HVAC** | Air Conditioner | 4-Pipe Fan Coil with central chiller and boiler<br>plus<br>DOAS (4) with 14.0 SEER DX coil (3.52 COP) and HHW coil on central boiler<br><br>SAT control 55ºF – 62ºF with OAT 75º – 54ºF |
| | Gas Furnace | none |
| | ERV | 70% - 75% sensible effectiveness |
| **Economizer** | | no |
| **Ventilation** | Outdoor Air Damper | Motorized control |
| | Demand Control | NR |
| | Laundry Room | Decoupled (5) |
| **Ducts** | Friction Rate | 0.08 in. w.c./100 feet |
| | Sealing | Seal class B |
| | Location | Interior only |
| | Insulation level | R-6 (6) |
| **Service Water Heating** | Gas storage | 90% $E_t$ |

**Notes for Perscriptive Technology Solution Table:**

(1) NOT USED

(2) NR means there is no requirement or recommendation for a component in this climate.

(3) Increased Building Air tightness. Building air leakage (measured in cfm/ft2) is the average volume of air(measured in cubic feet per minute) that passes through a unit area of the building envelope (measured in square feet) when the building is maintained at a specified internal pressure (measured in Pascals). Testing requirements are specified in Chapter 5..

(4) Dedicated Outdoor Air System. A central dedicated outdoor air system (DOAS) providing the following:

(a) Outside air for building indoor air quality and humidity control

(b) Make-up air for bathroom and kitchen exhausts

(c) Building pressurization to prevent infiltration which allows for reduction of heating/cooling and moisture loads on the system.

NOTE: The Central DOAS does not provide sensible heating or cooling. Sensible loads are provided by a complementing heating and cooling system

(5) **Decoupling exhaust and supply systems for laundry rooms**. To reduce unneeded energy use for heating and cooling of the make-up air and for air transportation of supply and exhausted air from the dryers, laundry exhaust and supply systems are separated in the efficient building model from the rest of the building exhaust and supply systems. Laundry exhaust system and corresponding make-up systems operate only when dryers are operating.

(6) The duct and pipe insulation values are from the ASHRAE Advanced Energy Design Guide for Small Offices.

All design features of this EPACT 2005 compliant UEPH not described above will be in accordance with the minimum requirements of ANSI/ASHRAE/IESNA Standard 90.1-2007. including conformance with paragraph 5.9.2, which requires purchase of Energy Star and FEMP designated products.

3.6.4. Compliance Path

When the “Compliance Path” is selected, the facility design shall include a uniquely developed technology solution set which can be shown by the design analysis (using facility energy simulation software) not to exceed the target energy consumption budget stated in 3.6.2 above and meet all the criteria in the DOE interim final rule: “Energy Conservation Standards for New Federal Commercial and Multi-Family High-Rise Residential Buildings and New Federal Low-Rise Residential Buildings”.

3.6.4.1. Schedules

If a unique technology solution set method of compliance is chosen then the following facility schedules must be used in all facility energy simulations for purposes of showing compliance with 3.6.4. Additionally, for simulation of a baseline building model, the “baseline values” for each component shall be as per ASHRAE Standard 90.1-2004 Building Envelope Requirements table for applicable climate zone and residential construction.

**UEPH Common Area Internal Load Schedules**

| Hr | Occupancy | | | Lighting | | | Washer/Dryer Use | | | Washer SHW | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wk | Sat | Sun | Wk | Sat | Sun | Wk | Sat | Sun | Wk | Sat | Sun |
| 1-6 | 0.00 | 0.00 | 0.00 | 0.30 | 0.30 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7-10 | 0.20 | 0.20 | 0.20 | 0.30 | 0.30 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11-18 | 0.00 | 0.00 | 0.00 | 0.30 | 0.30 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 19 | 0.00 | 0.00 | 0.00 | 0.80 | 0.80 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 20-21 | 0.20 | 0.20 | 0.20 | 0.80 | 0.80 | 0.80 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| 22-23 | 0.40 | 0.40 | 0.40 | 0.80 | 0.80 | 0.80 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 24 | 0.20 | 0.20 | 0.20 | 0.80 | 0.80 | 0.80 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| Peak | 5 occ/floor | | | 1.0 W/ft$^2$ (10.8 W/m$^2$) | | | 8.4 kW/floor | | | 53.3 gal/hr/flr (202 L/hr/flr) | | |

**UEPH Apartment Unit Internal Load Schedules**

| Hr | Occupancy | | | Lighting | | | Plug Loads | | | Service Hot Water | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wk | Sat | Sun | Wk | Sat | Sun | Wk | Sat | Sun | Wk | Sat | Sun |
| 1-5 | 0.80 | 0.75 | 0.75 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.00 | 0.00 | 0.00 |
| 6 | 0.70 | 0.65 | 0.75 | 0.40 | 0.30 | 0.20 | 0.20 | 0.20 | 0.20 | 0.10 | 0.10 | 0.10 |

| Hr | Occupancy | | | Lighting | | | Plug Loads | | | Service Hot Water | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 0.60 | 0.60 | 0.70 | 0.70 | 0.50 | 0.30 | 0.40 | 0.35 | 0.20 | 0.40 | 0.40 | 0.40 |
| 8 | 0.50 | 0.50 | 1.00 | 0.50 | 0.50 | 0.50 | 0.40 | 0.40 | 0.40 | 0.20 | 0.20 | 0.20 |
| 9 | 0.25 | 0.25 | 0.00 | 0.20 | 0.20 | 0.20 | 0.30 | 0.40 | 0.40 | 0.00 | 0.00 | 0.00 |
| 10-17 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.30 | 0.30 | 0.30 | 0.00 | 0.00 | 0.00 |
| 18 | 0.30 | 0.30 | 0.30 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.10 | 0.10 | 0.10 |
| 19 | 0.50 | 0.30 | 0.30 | 0.70 | 0.70 | 0.70 | 0.50 | 0.50 | 0.50 | 0.10 | 0.10 | 0.10 |
| 20 | 0.50 | 0.50 | 0.50 | 0.70 | 0.70 | 0.70 | 0.60 | 0.50 | 0.50 | 0.10 | 0.10 | 0.10 |
| 21 | 0.70 | 0.50 | 0.50 | 0.70 | 0.70 | 0.70 | 0.60 | 0.50 | 0.50 | 0.00 | 0.00 | 0.00 |
| 22 | 0.70 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | 0.00 | 0.00 | 0.00 |
| 23 | 0.80 | 0.75 | 0.75 | 0.40 | 0.40 | 0.40 | 0.40 | 0.50 | 0.50 | 0.00 | 0.00 | 0.00 |
| 24 | 0.80 | 0.75 | 0.75 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.00 | 0.00 | 0.00 |
| Peak | 2 occ/unit | | | 1.1 W/ft$^2$ (10.8 W/m$^2$) | | | 1.7 W/ft$^2$ (18 W/m$^2$) | | | 40 gal/hr (114 L/hr) | | |

**UEPH Apartment Unit Internal Load Schedules**

| Hr | Refrigerator | | | Range and Oven | | |
|---|---|---|---|---|---|---|
| | Wk | Sat | Sun | Wk | Sat | Sun |
| 1-6 | 1.00 | 1.00 | 1.00 | 0.01 | 0. 01 | 0. 01 |
| 7-16 | 1.00 | 1.00 | 1.00 | 0.04 | 0.04 | 0.04 |
| 17-18 | 1.00 | 1.00 | 1.00 | 0.05 | 0.05 | 0.05 |
| 19-20 | 1.00 | 1.00 | 1.00 | 0.11 | 0.11 | 0.11 |
| 21-23 | 1.00 | 1.00 | 1.00 | 0.10 | 0.10 | 0.10 |
| 24 | 1.00 | 1.00 | 1.00 | 0.03 | 0.03 | 0.03 |
| Peak | 76.36 W/unit | | | 68.95 W/unit | | |

**UEPH Apartment Unit Thermostat Set-Point Schedules**

| Hr | Heating (°F) | | | Heating (°C) | | | Cooling (°F) | | | Cooling (°C) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wk | Sat | Sun | Wk | Sat | Sun | Wk | Sat | Sun | Wk | Sat | Sun |
| 1-24 | 68 | 68 | 68 | 20 | 20 | 20 | 75 | 75 | 75 | 24 | 24 | 24 |

**UEPH Unoccupied Zones (ie stairwells, mechanical rooms) Thermostat Set-Point Schedules**

| Hr | Heating (°F) | | | Heating (°C) | | |
|---|---|---|---|---|---|---|
| | Wk | Sat | Sun | Wk | Sat | Sun |
| 1-24 | 55 | 55 | 55 | 12.8 | 12.8 | 12.8 |

3.7. MECHANICAL REQUIREMENTS

3.7.1. Plumbing

3.7.1.1. Water Heating: Domestic water heating system shall be sized based on 20 gallons of 110 deg. F hot water consumption per occupant during morning peak period. Peak period duration shall be 30 minutes (10 minute duration for shower and lavatory use per occupant per dwelling unit plus a 10 minute transition period). Hot water storage capacity shall be based on 75% usable storage and a storage temperature of 140 deg F. For domestic hot water pipe sizing, peak hot water flow rate shall be based on all showers flowing simultaneously at a rate of 2.0 gpm per shower. Waste stacks, building waste drains, and lift stations (if required) shall be sized with consideration of increased flow rates as well. Shower heads and lavatory faucets shall be water conservation type with maximum flow rate not to exceed 2.0 gpm.

3.7.1.2. Mudroom: Provide sand interceptors in drains from Mudroom areas.

3.7.1.3. Laundry: Centralized Laundry facilities shall be considered commercial laundries with respect to the IPC and shall be provided with solids interceptor in accordance with the IPC. IF DRYER VENTS ARE MANIFOLDED TO A COMMON EXHAUST, PROVIDE AN EASILY ACCESSIBLE MEANS OF CLEANOUT. Dryer exhaust vent exterior terminations shall be located no closer than 15 feet from dwelling unit bedroom windows.

3.7.2. Heating, Ventilating and Air-Conditioning

3.7.2.1. All room/dwelling unit HVAC units shall be located in equipment closets accessible only through a corridor access door with keyed deadbolt. Corridor HVAC access doors shall be sized for ease of service and maintenance of HVAC units. Access for maintenance shall not require entry into the dwelling unit. Air filters shall be located in the equipment closet.

3.7.2.2. Each dwelling unit shall be positively ventilated using dedicated outdoor air units. Dedicated outdoor air units (DOAUs) shall continuously supply dehumidified, tempered air ducted directly to each bedroom from DOAU. DOAU supply air ductwork shall not connect to dwelling unit heating/cooling unit. Supply air conditions from DOAU shall be between 68 and 75 degree F dry bulb and no greater than 48 degree F dew point. Supply quantity shall be 30 cfm per bedroom for a total of 60 cfm per dwelling unit. Dwelling unit exhaust shall be 45 cfm continuous through a bathroom exhaust. (Note: This exceeds ASHRAE 62.1 but provides compliance with IMC chapter 4 and maintains slight building positive pressurization with respect to dwelling unit exhaust rate of 45 cfm). DOAU unit shall be direct expansion (DX) type and cooling/dehumidification shall be available 24/7/365. Refer to chapter 6 for site specific constraints. The number of exhaust fans and DOAUs shall be the same, and exhaust fans and DOAUs shall be arranged for and shall include exhaust air energy recovery. Exhaust and DOAU systems shall be provided with variable frequency drives (VFDs) and shall be provided with a control logic that provides reduced ventilation rates during periods of low interior humidity and still meet minimum ASHRAE 62.1 requirements.

3.7.2.3. Corridors shall be ventilated per ASHRAE 62.1 by supply from the dedicated outdoor air unit.

3.7.2.4. Dwelling unit room temperature control shall be through the direct digital control (DDC) system. Each dwelling unit shall have a heating/cooling unit with thermostat/temperature control sensor located in common area. Occupant control will include fan selection (on/off) and an occupant temperature setpoint adjustment mechanism that allows +/- 2 deg F of adjustment from the DDC programmed set points (70 deg F heating, 75 deg F cooling). Additionally, the DDC controls shall monitor each dwelling unit for sub-cooling. The DDC system shall record an alarm event if the space temperature drops below 71 degree F (adjustable) when the outside air is greater than 85 degree F (adjustable). Occupant control shall also include ability to select heating or cooling mode. HVAC system shall be able to provide for year round heating or cooling in individual dwelling units as selected by the occupants.

3.7.2.5. Kitchen range hoods shall be the U.L. listed ductless type.

3.8. ELECTRICAL REQUIREMENTS

Select electrical characteristics of the power system to provide a safe, efficient, and economical distribution of power based upon the size and types of loads to be served. Use distribution and utilization voltages of the highest level that is practical for the load to be served. The effect of nonlinear loads such as computers, other electronic equipment and electronic ballasts shall be considered and accommodated as necessary. Voltage drop shall not exceed the maximum allowed per ASHRAE 90.1. Transient voltage surge protection shall be provided on service equipment. Bedrooms shall be considered to be living and sleeping rooms, therefore they are to be considered to be part of a dwelling unit per NFPA 70 definition.

3.8.1. Interior Lighting

Interior lighting controls shall be provided in accordance with ASHRAE 90.1. Compact fluorescent lamps of 12 watts or less shall not be used. Electronic ballasts for linear florescent lamps shall be the high efficiency programmed start type.. Provided lighting levels shall be within +/- 10% of required lighting levels.

3.8.1.1. Lighting level in bedrooms shall be 15 foot-candles. Lighting shall utilize compact fluorescent fixtures with manual on/off switching.

3.8.1.2. Lighting level in laundry room(s) shall be 30 foot-candles. Lighting shall have automatic occupancy sensor detection switching.

3.8.1.3. Lighting level in lobbies (if required by the RFP) shall be 10 foot-candles. Lighting in common areas such as corridors and lobbies shall have automatic occupancy sensor detection switching. Sensors in corridors shall be wired such that only the lighting fixtures within the activation range of a particular sensor shall turn on

3.8.1.4. Lighting level in kitchen areas shall be 30 foot-candles with automatic occupancy sensor detection switching. Switching shall be manual-ON/Automatic OFF. Counter top task lighting shall be installed under cabinets utilizing fixtures with 2 foot linear T8 fluorescent lamps with manual on/off switching. Task lighting switching shall be separate from general lighting switching.

3.8.1.5. Lighting level in mechanical and electrical rooms shall be 30 foot-candles. Lighting shall utilize fixtures with T8 fluorescent lamps with manual on/off switching.

3.8.1.6. Provide an illuminance level of 20-footcandles and automatic occupancy sensor detection switching to control fixture(s) in the mudroom (if mudroom is provided).

3.8.1.7. Provide a minimum illuminance level of 5-footcandles for the mail kiosk (if mail kiosk is provided).

3.8.1.8. Provide compact fluorescent light fixture with manual switching in each walk-in closet.

3.8.2. Interior Power

Interior power shall be provided for all installed equipment requiring power to include convenience receptacles and government furnished government installed equipment. Breaker panel for each dwelling unit shall be located in the common area. Breaker panels shall be lockable and all breaker panels in each building shall be keyed to one master key for maintenance personnel access only.

3.8.2.1. In addition to the requirements of NFPA 70 for dwelling units, a duplex receptacle shall be mounted adjacent to the CATV outlet.

3.8.2.2. Provide a minimum of one 125 volt duplex receptacle on each wall within the lobby (if lobby is provided) for housekeeping purposes.

3.8.2.3. Provide a minimum of one 125 volt duplex receptacle per corridor for housekeeping. No point along a corridor wall at 18” above finished floor shall be more than 25 feet from a receptacle.

3.8.2.4. Provide a minimum of two 125 volt duplex receptacles in mechanical rooms in addition to those required by NFPA 70. This requirement does not apply to the small mechanical rooms used for individual dwelling units. In addition, provide a minimum of one 125 volt duplex receptacle in each electrical room.

3.9. TELECOMMUNICATIONS REQUIREMENTS

Telecommunications outlets shall be provided per the applicable criteria based on functional purpose of the space within the building and in accordance with other provisions of this RFP. If conflict occurs between requirements of the applicable criteria and specific requirements within the RFP, the specific requirements shall govern.

3.9.1. Equipment racks shall be 84” in height.

3.9.2. A cable tray shall be installed around the entire perimeter of all telecommunications rooms.

3.9.3. Provide a single 8-pin modular jack for dataoutlet and a single CATV jack outlet in each bedroom.

3.10. CABLE TV (CATV) REQUIREMENTS

All CATV outlet boxes, connectors, cabling, and cabinets shall conform to applicable criteria unless noted otherwise. All horizontal cabling shall be homerun from the CATV outlet to the nearest telecommunications room. See paragraph 6 for additional requirements.

3.11. FIRE ALARM REQUIREMENTS

3.11.1.1. There shall be one complete addressable Fire Alarm System for each building. This system shall consist of a Fire Alarm Panel, a communications device, initiating devices and notification devices.

3.11.1.2. All software, software locks, special tools and any other proprietary equipment required to maintain, add devices to or delete devices from the system, or test the Fire Alarm system shall become property of the Government and be furnished to the Contracting Officer's Representative prior to final inspection of the system.

3.11.1.3. The fire alarm system shall be designed by a registered fire protection engineer and installation shall be supervised by a National Institute for Certification of Engineering Technologies (NICET) Level 3 minimum technician.

3.11.1.4. Smoke detectors shall be provided in all bedrooms. Smoke detectors in bedrooms shall be monitored. Tampering with a smoke detector shall send a trouble signal. Trouble signals shall be transmitted to the fire department.

## 4.0 APPLICABLE CRITERIA (REV 2.25 – 28 FEB 2010)

Unless a specific document version or date is indicated, use criteria from the most current references as of the date of issue of the contract or task order, including any applicable addenda, unless otherwise stated in the task order. In the event of conflict between References and/or Applicable Military Criteria, apply the most stringent requirement, unless otherwise specifically noted in the contract or task order.

### 4.1. INDUSTRY CRITERIA

Applicable design and construction criteria references are listed in Table 1 below. This list is not intended to include all criteria that may apply or to restrict design and construction to only those references listed. See also Paragraph 3 for additional facility-specific applicable criteria.

**Table 1: Industry Criteria**

| | |
|---|---|
| **Air Conditioning and Refrigeration Institute (ARI)** | |
| ARI 310/380 | Packaged Terminal Air-Conditioners and Heat Pumps |
| ARI 440 | Room Fan-Coil and Unit Ventilator |
| ANSI/ARI 430-99 | Central Station Air Handling Units |
| ARI 445 | Room Air-Induction Units |
| ARI 880 | Air Terminals |
| **Air Movement and Control Association (AMCA)** | |
| AMCA 210 | Laboratory Methods of Testing Fans for Rating |
| **American Architectural Manufacturers Association (AAMA)** | |
| AAMA 605 | Voluntary Specification Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels |
| AAMA 607.1 | Voluntary Guide Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum |
| AAMA 1503 | Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections |
| **American Association of State Highway and Transportation Officials (AASHTO)** | |
| | Roadside Design Guide [guardrails, roadside safety devices] |
| | Standard Specifications for Transportation Materials and Methods of Sampling and Testing [Road Construction Materials] |

| | |
|---|---|
| | Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals |
| | Guide for Design of Pavement Structures, Volumes 1 and 2 [pavement design guide] |
| | A Policy of Geometric Design of Highways and Streets |
| **American Bearing Manufacturers Association (AFBMA)** | |
| AFBMA Std. 9 | Load Ratings and Fatigue Life for Ball Bearings |
| AFBMA Std. 11 | Load Ratings and Fatigue Life for Roller Bearings |
| **American Boiler Manufacturers Association (ABMA)** | |
| ABMA ISEI | Industry Standards and Engineering Information |
| **American Concrete Institute** | |
| ACI 302.2R | Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials |
| ACI 318 | Building Code Requirements for Structural Concrete |
| ACI 315 | Details and Detailing of Concrete Reinforcement |
| ACI 530 | Building Code Requirements for Masonry Structures |
| **ADA Standards for Accessible Design** | |
| See US Access Board | ADA and ABA Accessibility Guidelines for Buildings and Facilities, Chapters 3-10. |
| **American Institute of Steel Construction (AISC)** | |
| | Manual of Steel Construction – 13th Edition (or latest version) |
| **American Iron and Steel Institute** | |
| AISI/COS NASPEC 2001 | North American Specification for the Design of Cold-Formed Steel Structural Members |
| **American National Standards Institute 11 (ANSI)** | |

| | |
|---|---|
| ANSI Z21.10.1 | Gas Water Heaters Vol. 1, Storage water Heaters with Input Ratings of 75,000 Btu per Hour or less |
| ANSI Z124.3 | American National Standard for Plastic Lavatories |
| ANSI Z124.6 | Plastic Sinks |
| ANSI Z21.45 | Flexible Connectors of Other Than All-Metal Construction for Gas Appliances |
| ANSI/IEEE C2-2007 | National Electrical Safety Code |
| ANSI/AF&PA NDS-2001 | National Design Specification for Wood Construction |
| **American Society of Civil Engineers (ASCE)** | |
| ASCE 7 | Minimum Design Loads for Buildings and Other Structures |
| ASCE 37 | Design and Construction of Sanitary and Storm Sewers, Manuals and Reports on Engineering Practice [sanitary sewer and storm drain design criteria] |
| ASCE/SEI 31-03 | Seismic Evaluation of Existing Buildings [Existing Building Alteration/Renovation] |
| ASCE/SEI 41-06 | Seismic Rehabilitation of Existing Buildings [Existing Building Alteration/Renovation] |
| **American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)** | |
| ASHRAE 90.1 | ANSI/ASHRAE/IESNA 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings |
| ASHRAE Guideline 0 | The Commissioning Process |
| ASHRAE Guideline 1.1 | The HVAC Commissioning Process |
| ASHRAE Handbooks | Fundamentals, HVAC Applications, Systems and Equipment, Refrigeration (Applicable, except as otherwise specified) |
| ASHRAE Standard 15 | Safety Standard for Refrigeration Systems |
| ASHRAE Standard 62.1 | Ventilation for Acceptable Indoor Air Quality |
| **American Society of Mechanical Engineers International (ASME)** | |

| | |
|---|---|
| ASME BPVC SEC VII | Boiler and Pressure Vessel Code: Section VII Recommended Guidelines for the Care of Power Boilers |
| ASME A17.1 | Safety Code for Elevators and Escalators |
| ASME B 31 (Series) | Piping Codes |
| **American Water Works Association (AWWA)** | |
| | Standards [standards for water line materials and construction] |
| **American Welding Society** | |
| | Welding Handbook |
| | Welding Codes and Specifications (as applicable to application, see International Building Code for example) |
| **Architectural Woodwork Institute (AWI)** | |
| Version 1.2 | AWI Quality Standards 7th Edition |
| **Associated Air Balance Council (AABC)** | |
| AABC MN-1 | National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems |
| | AABC Associated Air Balance Council Testing and Balance Procedures |
| **ASTM International** | |
| ASTM C1060-90(1997) | Standard Practice for Thermographic Inspection of Insulation Installations in Envelope Cavities of Frame Buildings |
| ASTM E 779 (2003) | Standard Test Method for Determining Air Leakage Rate by Fan Pressurization |
| ASTM E1827-96(2002) | Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door |
| **Builders Hardware Manufacturers Association (BHMA)** | |
| ANSI/BHMA | American National Standards for Builders Hardware |
| **Building Industry Consulting Service International** | |

| | |
|---|---|
| | Telecommunications Distribution Methods Manual (TDMM) |
| | Customer-Owned Outside Plant Design Manual (CO-OSP) |
| **Code of Federal Regulations (CFR)** | |
| 49 CFR 192 | Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards |
| 10 CFR 430 | Energy Conservation Program for Consumer Products |
| **Consumer Electronics Association** | |
| CEA 709.1B | Control Network Protocol Specification |
| CEA 709.3 | Free-Topology Twisted-Pair Channel Specification |
| CEA 852 | Tunneling Component Network Protocols Over Internet Protocol Channels |
| **Electronic Industries Association (EIA)** | |
| ANSI/EIA/TIA 568~~-B~~ | Structured Cabling Series |
| ANSI/EIA/TIA 569~~-B~~<br>~~And ANSI/EIA/TIA 569-B-1~~ | Commercial Building Standard for Telecommunications Pathways and Spaces (includes ~~569-B-1~~ ADDEND~~AUM~~) |
| ANSI/TIA/EIA-606~~-A~~ | Administrative Standard for the Telecommunications Infrastructure of Commercial Buildings |
| J-STD EIA/TIA 607~~-A~~ | Commercial Building Grounding and Bonding Requirements for Telecommunications |
| **Federal Highway Administration (FHWA)** | |
| | Manual on Uniform Traffic Control Devices for Streets and Highways [signage and pavement markings for streets and highways] |
| FHWA-NHI-01-021 | Hydraulic Engineering Circular No. 22, Second Edition, URBAN DRAINAGE DESIGN MANUAL |
| **Illuminating Engineering Society of North America (IESNA)** | |
| IESNA RP-1 | Office Lighting |

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|---|---|
| IESNA RP-8 | Roadway Lighting |
| IESNA Lighting Handbook | Reference and Application |
| **Institute of Electrical and Electronics Engineers Inc. (IEEE)** | |
| | Standard for Use of the International System of Units (SI): the Modern Metric System |
| Standard 1100 | Recommended Practice for Powering and Grounding Sensitive Electronic Equipment |
| **International Code Council (ICC)** | |
| IBC | International Building Code<br><br>Note: All references in the International Building Code to the International Electrical Code shall be considered to be references to NFPA 70.<br><br>All references in the International Building Code to the International Fuel Gas Code shall be considered to be references to NFPA 54 and NFPA 58.<br><br>All references in the International Building Code to the International Fire Code and Chapter 9 shall be considered to be references to Unified Facilities Criteria (UFC) 3-600-01. |
| IMC | International Mechanical Code –<br><br>Note: For all references to “HEATING AND COOLING LOAD CALCULATIONS”, follow ASHRAE 90.1<br><br>Note: For all references to “VENTILATION”, follow ASHRAE 62.1 |
| IRC | International Residential Code |
| IPC | International Plumbing Code |
| IEC | Energy Conservation Code (IEC) –Applicable only to the extent specifically referenced herein. Refer to Paragraph 5, ENERGY CONSERVATION requirements. |
| IGC | International Gas Code - not applicable. Follow NFPA 54, National Fuel Gas Code and NFPA 58, Liquified Petroleum Gas Code. |
| **International Organization for Standardization (ISO)** | |
| ISO 6781:1983 | Qualitative detection of thermal irregularities in building envelopes – |

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|---|---|
| | infrared method |
| **LonMark International (LonMark)** | |
| LonMark Interoperability Guidelines | (available at www.lonmark.org), including: Application Layer Guidelines, Layer 1-6 Guidelines, and External Interface File (XIF) Reference Guide |
| LonMark Resource Files | (available at www.lonmark.org), including Standard Network Variable Type (SNVT) definitions |
| **Metal Building Manufacturers Association (MBMA)** | |
| | Metal Building Systems Manual |
| **Midwest Insulation Contractors Association (MICA)** | |
| | National Commercial and Industrial Insulation Standards Manual |
| **National Association of Corrosion Engineers International (NACE)** | |
| NACE RP0169 | Control of External Corrosion on Underground or Submerged Metallic Piping Systems |
| NACE RP0185 | Extruded, Polyolefin Resin Coating Systems with Adhesives for Underground or Submerged Pipe |
| NACE RP0285 | Corrosion Control of Underground Storage Tank Systems by Cathodic Protection |
| NACE RP0286 | Electrical Isolation of Cathodically Protected Pipelines |
| **National Electrical Manufacturers Association (NEMA)** | |
| **National Environmental Balancing Bureau (NEBB)** | |
| | Procedural Standards Procedural Standards for Testing Adjusting Balancing of Environmental Systems |
| **National Fire Protection Association (NFPA)** | |
| NFPA 10 | Standard for Portable Fire Extinguishers |
| NFPA 13 | Installation of Sprinkler Systems |
| NFPA 13R | Residential Occupancies up to and Including Four Stories in Height Sprinkler Systems |

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|---|---|
| NFPA 14 | Standard for the Installation of Standpipes and Hose Systems |
| NFPA 20 | Installation of Centrifugal Fire Pumps |
| NFPA 24<br><br>NFPA 25 | Standard for the Installation of Private Fire Service Mains and Their Appurtenances [underground fire protection system design]<br><br>Inspection, Testing And Maintenance Of Water-Based Fire Protection Systems |
| NFPA 30 | Flammable and Combustible Liquids Code |
| NFPA 30A | Motor Fuel Dispensing Facilities and Repair Garages |
| NFPA 31 | Installation of Oil Burning Equipment |
| NFPA 54 | National Fuel Gas Code |
| NFPA 58 | Liquefied Petroleum Gas Code |
| NFPA 70 | National Electrical Code |
| NFPA 72 | National Fire Alarm Code |
| NFPA 76 | Fire Protection of Telecommunications Facilities |
| NFPA 80 | Standard for Fire Doors and Fire Windows |
| NFPA 90a | Installation of Air Conditioning and Ventilating Systems |
| NFPA 96 | Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations |
| NFPA 101 | Life Safety Code |
| NFPA 780 | Standard for the Installation of Lightning Protection Systems |
| **National Roofing Contractor's Association (NRCA)** | |
| | Roofing and Waterproofing Manual |
| **National Sanitation Foundation, International** | |
| NSF/ANSI Std. 2, 3, 4, 5, 6, 7, 8, 12, 13, 18, 20, 21, 25, 29, 35, 36, 37, 51, 52, 59, | Food Equipment Standards |

| | |
|---|---|
| 169 | |
| ANSI/UL Std. 73, 197, 471, 621, 763 | Food Equipment Standards |
| CSA Std. C22.2 No. 109, 120, 195 | Food Equipment Standards |
| **Occupational Safety and Health Administration (OSHA)** | |
| Title 29, Part 1926 | OSHA Construction Industry Standards, Title 29, Code of Federal Regulations, Part 1926, Safety and Health Regulations for Construction |
| **Plumbing and Drainage Institute (PDI)** | |
| PDI G 101 | Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation Data |
| PDI WH201 | Water Hammer Arrestors |
| **Precast Concrete Institute** | |
| PCI Design Handbook | Precast and Prestressed Concrete |
| **Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)** | |
| SMACNA HVAC Duct Construction Standards | HVAC Duct Construction Standards - Metal and Flexible |
| SMACNA Architectural Manual | Architectural Sheet Metal Manual |
| SMACNA HVAC TAB | HVAC Systems - Testing, Adjusting and Balancing |
| **State/Local Regulations** | |
| | State Department of Transportation Standard Specifications for Highway and Bridge Construction |
| | Sedimentation and Erosion Control Design Requirements |
| | Environmental Control Requirements |
| | Storm Water Management Requirements |
| **Steel Door Institute (SDI)** | |

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|---|---|
| ANSI A250.8/SDI 100 | Standard Steel Doors and Frames |
| **Steel Deck Institute** | |
| | SDI Diaphragm Design Manual |
| **Steel Joist Institute** | |
| | Catalog of Standard Specifications and Load Tables for Steel Joists and Joist Girders |
| **Underwriters Laboratories (UL)** | |
| UL 96A | Installation Requirements for Lightning Protection Systems |
| UL 300 | Standard for Safety for Fire Testing of Fire Extinguishing Systems for Protection of Restaurant Cooking Areas |
| **UNITED STATES ACCESS BOARD: U.S. ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD** | |
| ADA and ABA Accessibility Guidelines for Buildings and Facilities | ABA Accessibility Standard for DoD Facilities<br><br>Derived from the ADA and ABA Accessibility Guidelines: Specifically includes: ABA Chapters 1 and 2 and Chapters 3 through 10.<br><br>Use this reference in lieu of IBC Chapter 11.<br><br>Excluded are:<br><br>(a) Facilities, or portions of facilities, on a military installation that are designed and constructed for use exclusively by able-bodied military personnel (See Paragraph 3 for any reference to this exclusion).<br><br>(b) Reserve and National Guard facilities, or portions of such facilities, owned by or under the control of the Department of Defense, that are designed and constructed for use exclusively by able-bodied military personnel. (See paragraph 3 for any reference to this exclusion). |
| **U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES** | |
| | FDA National Food Code |
| **U.S. GREEN BUILDING COUNCIL (USGBC)** | |
| LEED-NC | Green Building Rating System for New Construction & Major Renovations |
| | Application Guide for Multiple Buildings and On-Campus Building Projects |

4.2. MILITARY CRITERIA

The project shall conform to the following criteria. Certain design impacts and features due to these criteria are noted for the benefit of the offeror. However, all requirements of the referenced criteria will be applicable, whether noted or not, unless otherwise specified herein.

4.2.1. Energy Policy Act of 2005 (Public Law 109-58) (applies only to the extent specifically implemented in the contract, which may or may not directly cite or reference EPACT)

4.2.2. Executive Order 12770: Metric Usage In Federal Government

(a) Metric design and construction is required except when it increases construction cost. Offeror to determine most cost efficient system of measurement to be used for the project.

4.2.3. TB MED 530: Occupational and Environmental Health Food Sanitation

4.2.4. Unified Facilities Criteria (UFC) 3-410-01FA: Heating, Ventilating, and Air Conditioning - applicable only to the extent specified in paragraph 5, herein.

4.2.5. UFC 3-580-01 Telecommunications Bldg Cabling Systems Planning/Design

4.2.6. UFC 3-600-01 Design: Fire Protection Engineering for Facilities. Use the latest edition of the IBC in coordination with this UFC. Use Chapters 3, 6, 7, 33 and UFC 3-600-01. If any conflict occurs between these Chapters and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence. Use UFC 3-600-01 in lieu of IBC Chapters 4, 8,9,10.

4.2.7. UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings

4.2.8. UFC 4-023-03 Design of Buildings to Resist Progressive Collapse (Use most recent version, regardless of references thereto in other publications)

(a) Note the option to use tie force method or alternate path design for Occupancy Category II.

4.2.9. UFC 4-021-01 Design and O&M: Mass Notification Systems

4.2.10. Technical Criteria for Installation Information Infrastructure Architecture (I3A)

(a) Email: DetrickISECI3Aguide@conus.army.mil

4.2.11. U.S. Army Information Systems Engineering Command (USAISEC) TG for the Integration of SECRET Internet Protocol (IP) Router Network (SIPRNET). See Paragraph 3 for applicability to specific facility type. May not apply to every facility. This is mandatory criteria for those facilities with SIPRNET.

## 5.0 GENERAL TECHNICAL REQUIREMENTS (REV 1.33 – 28 FEB 2010)

This paragraph contains general technical requirements. See also Paragraph 3 for facility-specific technical requirements. Residential or similar grade finishes and materials are not acceptable for inclusion in these buildings, unless otherwise specifically allowed.

5.1. SITE PLANNING AND DESIGN

5.1.1. STANDARDS AND CODES: The site planning and design shall conform to APPLICABLE CRITERIA and to paragraph 6, PROJECT SPECIFIC REQUIREMENTS.

5.1.2. SITE PLANNING OBJECTIVES: Group buildings in configurations that create a sense of community and promote pedestrian use. See paragraph 3 for additional site planning requirements relating to building functions.

5.1.2.1. Provide enclosures and or visual screening devices for Outdoor Utility such as dumpsters, emergency generators, transformers, heating, ventilation, and air conditioning units from streetscape and courtyard views to limit visual impact. Enclosures shall be compatible with the building they serve and accessible by vehicle. The location of dumpsters can have a significant visual impact and should be addressed as part of an overall building design and incorporated in site planning.

5.1.2.2. Dumpsters Pads shall be concrete (minimum of 8 inches thick on 4 inch base course, unless site conditions dictate more conservative requirements) and directly accessible by way of a paved service drive or parking lot with adequate overhead clearance for collection vehicles. Provide space at dumpster areas for recycling receptacles. Coordinate with Installation on recycling receptacle types, sizes and access requirements and provide space at dumpster areas to accommodate them.

5.1.2.3. Vehicular Circulation. Apply design vehicle templates provided by the American Association of State Highway and Transportation Officials (AASHTO) to the site design. The passenger car class includes passenger cars and light trucks, such as vans and pick-ups. The passenger car template is equivalent to the non-organizational – privately owned vehicle (POV). The truck class template includes single-unit trucks, recreation vehicles, buses, truck tractor-semi-trailer combinations, and trucks or truck tractors with semi-trailers in combination with full trailers. Provide vehicle clearances required to meet traffic safety for emergency vehicles, service vehicles, and moving vans. Provide required traffic control signage Site entrances and site drive aisles shall maximize spacing between drives, incorporate right-angle turns, and limit points of conflict between traffic. Design Services Drives to restrict access to unauthorized vehicles by removable bollards, gates, or other barriers to meet Anti-Terrorism/Force Protection (ATFP) requirements. Orient service drives to building entrances other than the primary pedestrian entry at the front of the building.

5.1.2.4. Provide Emergency Vehicle Access around the facility and shall be in accordance with AT/FP requirements. Maintain a 33-foot clear zone buffer for emergency vehicles, designed to prevent other vehicles from entering the AT/FP standoff to the building.

5.1.2.5. Clear and grub all trees and vegetation necessary for construction; but, save as many trees as possible. Protect trees to be saved during the construction process from equipment.

5.1.2.6. Stormwater Management. Employ design and construction strategies (Best Management Practices) that reduce stormwater runoff, reduce discharges of polluted water offsite and maintain or restore predevelopment hydrology with respect to temperature, rate, volume and duration of flow to the maximum extent practicable. See paragraph 6, PROJECT SPECIFIC requirements for additional information.

5.1.3. EXTERIOR SIGNAGE: Provide exterior signage in accordance with Appendix H, Exterior Signage. Provide exterior NO SMOKING signage that conveys building and grounds smoking policy.

5.1.4. EXISTING UTILITIES: Base utilities maps and capacities for this site are included as part of this RFP. See paragraph 6 for more detailed information.

5.2. SITE ENGINEERING

5.2.1. STANDARDS AND CODES: The site engineering shall conform to APPLICABLE CRITERIA.

5.2.2. SOILS:

5.2.2.1. A report has been prepared to characterize the subsurface conditions at the project site and is **appended to these specifications.** The report provides a general overview of the soil and geologic conditions with detailed descriptions at discrete boring locations. The Contractor's team shall include a licensed geotechnical engineer to interpret the report and develop earthwork and foundation recommendations and design parameters in which to base the contractor's design. If any additional subsurface investigation or laboratory analysis is required to better characterize the site or develop the final design, the Contractor shall perform it under the direction of a licensed geotechnical engineer. There will be no separate payment for the cost of additional tests. If differences between the Contractor's additional subsurface investigation and the government provided soils report or the reasonably expected conditions require material revisions in the design, an equitable adjustment may be made, in accordance with the provisions of the Differing Site Conditions clause. The basis for the adjustment would be the design and construction appropriate for the conditions described in the Government furnished report or the reasonably expected conditions, in comparison with any changes required by material differences in the actual conditions encountered, in accordance with the terms of contract clause Differing Site Conditions.

5.2.2.2. The contractor's licensed geotechnical engineer shall prepare a final geotechnical evaluation report, to be submitted along with the first foundation design submittal, as described in Section 01 33 16, *Design After Award*.

5.2.3. VEHICLE PAVEMENTS: (as applicable to the project)

5.2.3.1. Design procedures and materials shall conform to one of the following: 1) the USACE Pavement Transportation Computer Assisted Structural Engineering (PCASE) program, 2) American Association of State Highway and Transportation Officials (AASHTO) or, 3) the applicable state Department of Transportation standards in which the project is located. See paragraph 5.2.2.2 and Section 01 33 16 for required information for the Contractor's geotechnical evaluation report. The minimum flexible pavement section shall consist of 2 inches of asphalt and 6 inches of base or as required by the pavement design, whichever is greater, unless specifically identified by the Government to be a gravel road. Design roads and parking areas for a life expectance of 25 years with normal maintenance. Parking area for tactical vehicles (as applicable to the project) shall be Portland Cement Concrete (PCC) rigid pavement design. For concrete pavements, submit joint layout plan for review and concurrence. Design pavements for military tracked vehicles (as applicable to the project) IAW USACE PCASE. Traffic estimates for each roadway area will be as shown on the drawings or listed in Section 01 10 00 Paragraph 6.4.4. Pavement markings and traffic signage shall comply with the Installation requirements and with the Manual on Uniform Traffic Control Devices.

5.2.3.2. Parking Requirements.

(a) All handicap POV parking lots (where applicable in the facility specific requirements) shall meet the ADA and ABA Accessibility Guidelines for accessible parking spaces.

(b) Design POV parking spaces for the type of vehicles anticipated, but shall be a minimum of 9 ft by 18 ft for POVs, except for two wheel vehicles.

5.2.3.3. Sidewalks. Design the network of walks throughout the complex (where applicable) to facilitate pedestrian traffic among facilities, and minimize the need to use vehicles. Incorporate sidewalks to enhance the appearance of the site development, while creating a sense of entry at the primary patron entrances to the buildings. Minimum sidewalk requirements are in Paragraph 3, where applicable.

5.2.4. CATHODIC PROTECTION: Provide cathodic protection systems for all underground metallic systems and metallic fittings/portions of non-metallic, underground systems, both inside and outside the building 5 foot line that are subject to corrosion. Coordinate final solutions with the installation to insure an approach that is consistent with installation cathodic protection programs.

5.2.5. UTILITIES: See paragraph 6.4.6 for specific information on ownership of utilities and utility requirements. Meter all utilities (gas, water, and electric, as applicable) to each facility. For Government owned utilities, install meters that are wireless data transmission capable as well as have a continuous manual reading option. All meters will be capable of at least hourly data logging and transmission and provide consumption data for gas, water, and electricity. Gas and electric meters will also provide demand readings based on consumption over a maximum of

any 15 minute period. Configure all meters to transmit at least daily even if no receiver for the data is currently available at the time of project acceptance. For privatized utilities, coordinate with the privatization utility(ies) for the proper meter base and meter installation.

5.2.6. PERMITS: The CONTRACTOR shall be responsible for obtaining all permits (local, state and federal) required for design and construction of all site features and utilities.

5.2.7. IRRIGATION. Landscape irrigation systems, if provided, shall comply with the following:

5.2.7.1. Irrigation Potable Water Use Reduction. Reduce irrigation potable water use 50 percent using LEED credit WE1.1 baseline, except where precluded by other project requirements.

5.2.8. EPA WaterSense Products and Contractors. Except where precluded by other project requirements, use EPA WaterSense labeled products and irrigation contractors that are certified through a WaterSense labeled program where available.

5.3. ARCHITECTURE AND INTERIOR DESIGN:

This element will be evaluated per APPLICABLE CRITERIA under the quality focus.

5.3.1. STANDARDS AND CODES: The architecture and interior design shall conform to APPLICABLE CRITERIA.

5.3.2. GENERAL: Overall architectural goal is to provide a functional, quality, visually appealing facility that is a source of pride for the installation and delivered within the available budget and schedule.

5.3.3. COMPUTATION OF AREAS: See APPENDIX Q for how to compute gross and net areas of the facility(ies).

5.3.4. BUILDING EXTERIOR: Design buildings to enhance or compliment the visual environment of the Installation. Where appropriate, reflect a human scale to the facility. Building entrance should be architecturally defined and easily seen. When practical, exterior materials, roof forms, and detailing shall be compatible with the surrounding development and adjacent buildings on the Installation and follow locally established architectural themes. Use durable materials that are easy to maintain. Exterior colors shall conform to the Installation requirements. See paragraph 6.

5.3.4.1. Building Numbers: Each building shall have exterior signage permanently attached on two faces of the building indicating the assigned building number or address. Building number signage details and locations shall conform to Appendix H, Exterior Signage.

5.3.5. BUILDING INTERIOR

5.3.5.1. Space Configuration: Arrange spaces in an efficient and functional manner in accordance with area adjacency matrices.

5.3.5.2. Surfaces: Appearance retention is the top priority for building and furniture related finishes. Provide low maintenance, easily cleaned room finishes that are commercially standard for the facility occupancy specified, unless noted otherwise.

5.3.5.3. Color: The color, texture and pattern selections for the finishes of the building shall provide an aesthetically pleasing, comfortable, easily maintainable and functional environment for the occupants. Coordination of the building colors and finishes is necessary for a cohesive design. Color selections shall be appropriate for the building type. The use of color, texture and pattern shall be used to path or way find through the building. Trendy colors that will become dated shall be limited to non-permanent finishes such as carpet and paint. Finishes should be selected with regards to aesthetics, maintenance, durability, life safety and image. Limit the number of similar colors for each material. Color of Ceramic and porcelain tile grout shall be medium range color to help hide soiling. Plastic laminate and solid surface materials shall have patterns that are mottled, flecked or speckled. Finish colors of fire extinguisher cabinets, receptacle bodies and plates, fire alarms / warning lights, emergency lighting, and other miscellaneous items shall be coordinated with the building interior. Color of equipment items on ceilings (speakers, smoke detectors, grills, etc.) shall match the ceiling color.

5.3.5.4. Circulation: Circulation schemes must support easy way finding within the building.

5.3.5.5. Signage: Provide interior signage for overall way finding and life safety requirements. A comprehensive interior plan shall be from one manufacturer. Include the following sign types: (1) Lobby Directory, (2) Directional Signs; (3) Room Identification Signs; (4) Building Service Signs; (5) Regulatory Signs; (6) Official and Unofficial Signs (7) Visual Communication Boards (8) NO SMOKING signage that conveys building smoking policy. Use of emblems or logos may also be incorporated into the signage plan.

5.3.5.6. Window Treatment: Interior window treatments with adjustable control shall be provided in all exterior window locations for control of day light coming in windows or privacy at night. Uniformity of treatment color and material shall be maintained to the maximum extent possible within a building.

5.3.6. COMPREHENSIVE INTERIOR DESIGN

5.3.6.1. Comprehensive Interior Design includes the integration of a Structural Interior Design (SID) and a Furniture, Fixtures and Equipment (FF&E) design and package. SID requires the design, selection and coordination of interior finish materials that are integral to or attached to the building structure. Completion of a SID involves the selection and specification of applied finishes for the building's interior features including, but not limited to, walls, floors, ceilings, trims, doors, windows, window treatments, built-in furnishings and installed equipment, lighting, and signage. The SID package includes finish schedules, finish samples and any supporting interior elevations, details or plans necessary to communicate the building finish design and build out. The SID also provides basic space planning for the anticipated FF&E requirements in conjunction with the functional layout of the building and design issues such as life safety, privacy, acoustics, lighting, ventilation, and accessibility. See Section 01 33 16 for SID design procedures.

The FF&E design and package includes the design, selection, color coordination and of the required furnishing items necessary to meet the functional, operational, sustainability, and aesthetic needs of the facility coordinated with the interior finish materials in the SID. The FF&E package includes the specification, procurement documentation, placement plans, ordering and finish information on all freestanding furnishings and accessories, and a cost estimate. Coordinate the selection of furniture style, function and configuration with the defined requirements. Examples of FF&E items include, but are not limited to workstations, seating, files, tables, beds, wardrobes, draperies and accessories as well as marker boards, tack boards, and presentation screens. Criteria for furniture selection include function and ergonomics, maintenance, durability, sustainability, comfort and cost.

5.4. STRUCTURAL DESIGN

5.4.1. STANDARDS AND CODES: The structural design shall conform to APPLICABLE CRITERIA.

5.4.2. GENERAL: The structural system needs to be compatible with the intended functions and components that allows for future flexibility and reconfigurations of the interior space. Select an economical structural system based upon facility size, projected load requirements and local availability of materials and labor. Base the structural design on accurate, site specific geotechnical information and anticipated loads for the building types and geographical location. When modular units or other pre-fabricated construction is used or combined with stick-built construction, fully coordinate and integrate the overall structural design between the two different or interfacing construction types. If the state that the project is located in requires separate, specific licensing for structural engineers (for instance, such as in Florida, California and others), then the structural engineer designer of record must be registered in that state.

5.4.3. LOADS: See paragraph 3 for facility specific (if applicable) and paragraph 6 for site and project specific structural loading criteria.

5.4.4. TERMITE TREATMENT: (Except Alaska) Provide termite prevention treatment in accordance with Installation and local building code requirements, using licensed chemicals and licensed applicator firm.

5.5. THERMAL PERFORMANCE

5.5.1. STANDARDS AND CODES: Building construction and thermal insulation for mechanical systems shall conform to APPLICABLE CRITERIA.

5.5.2. BUILDING ENVELOPE SEALING PERFORMANCE REQUIREMENT. Design and construct the building envelope for office buildings, office portions of mixed office and open space (e.g., company operations facilities), dining, barracks and instructional/training facilities with a continuous air barrier to control air leakage into, or out of, the conditioned space. Clearly identify all air barrier components of each envelope assembly on construction documents and detail the joints, interconnections and penetrations of the air barrier components. Clearly identify the boundary limits of the building air barriers, and of the zone or zones to be tested for building air tightness on the drawings.

5.5.2.1. Trace a continuous plane of air-tightness throughout the building envelope and make flexible and seal all moving joints.

5.5.2.2. The air barrier material(s) must have an air permeance not to exceed 0.004 cfm / sf at 0.3” wg (0.02 L/s.m2 @ 75 Pa) when tested in accordance with ASTM E 2178

5.5.2.3. Join and seal the air barrier material of each assembly in a flexible manner to the air barrier material of adjacent assemblies, allowing for the relative movement of these assemblies and components.

5.5.2.4. Support the air barrier so as to withstand the maximum positive and negative air pressure to be placed on the building without displacement, or damage, and transfer the load to the structure.

5.5.2.5. Seal all penetrations of the air barrier. If any unavoidable penetrations of the air barrier by electrical boxes, plumbing fixture boxes, and other assemblies are not airtight, make them airtight by sealing the assembly and the interface between the assembly and the air barrier or by extending the air barrier over the assembly.

5.5.2.6. The air barrier must be durable to last the anticipated service life of the assembly.

5.5.2.7. Do not install lighting fixtures with ventilation holes through the air barrier

5.5.2.8. Provide a motorized damper in the closed position and connected to the fire alarm system to open on call and fail in the open position for any fixed open louvers such as at elevator shafts.

5.5.2.9. Damper and control to close all ventilation or make-up air intakes and exhausts, atrium smoke exhausts and intakes, etc when leakage can occur during inactive periods.

5.5.2.10. Compartmentalize garages under buildings by providing air-tight vestibules at building access points.

5.5.2.11. Compartmentalize spaces under negative pressure such as boiler rooms and provide make-up air for combustion.

5.5.2.12. Performance Criteria and Substantiation: Submit the qualifications and experience of the testing entity for approval. Demonstrate performance of the continuous air barrier for the opaque building envelope by the following tests:

(a) Test the completed building and demonstrate that the air leakage rate of the building envelope does not exceed 0.25cfm/ft2 at a pressure differential of 0.3” w.g.(75 Pa) in accordance with ASTM’s E 779 (2003) or E-1827-96 (2002). Accomplish tests using either pressurization or depressurization or both. Divide the volume of air leakage in cfm @ 0.3” w.g. (L/s @ 75 Pa) by the area of the pressure boundary of the building, including roof or ceiling, walls and floor to produce the air leakage rate in cfm/ft2 @ 0.3” w.g. (L/s.m2 @ 75 Pa). Do not test the building until verifying that the continuous air barrier is in place and installed without failures in accordance with installation instructions so that repairs to the continuous air barrier, if needed to comply with the required air leakage rate, can be done in a timely manner.

(b) Test the completed building using Infrared Thermography testing. Use infrared cameras with a resolution of 0.1deg C or better. Perform testing on the building envelope in accordance with ISO 6781:1983 and ASTM C1060-90(1997). Determine air leakage pathways using ASTM E 1186-03 Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems, and perform corrective work as necessary to achieve the whole building air leakage rate specified in (a) above.

(c) Notify the Government at least three working days prior to the tests to provide the Government the opportunity to witness the tests. Provide the Government written test results confirming the results of all tests.

5.6. PLUMBING

5.6.1. STANDARDS AND CODES: The plumbing system shall conform to APPLICABLE CRITERIA.

5.6.2. PRECAUTIONS FOR EXPANSIVE SOILS: Where expansive soils are present, the design for underslab piping systems and underground piping serving chillers, cooling towers, etc, shall include features to control forces resulting from soil heave. Some possible solutions include, but are not necessarily limited to, features such as flexible expansion joints, slip joints, horizontal offsets with ball joints, or multiple bell and spigot gasketed fittings. For structurally supported slabs, piping should be suspended from the structure with adequate space provided below the pipe for the anticipated soil movement.

5.6.3. HOT WATER SYSTEMS: For Hot Water heating and supply, provide a minimum temp of 140 Deg F in the storage tank and a maximum of 110 Deg F at the fixture, unless specific appliances or equipment specifically require higher temperature water supply.

5.6.4. SIZING HOT WATER SYSTEMS: Unless otherwise specified or directed in paragraph 3, design in accordance with ASHRAE Handbook Series (appropriate Chapters), ASHRAE Standard 90.1, and the energy conservation requirements of the contract. Size and place equipment so that it is easily accessible and removable for repair or replacement.

5.6.5. JANITOR CLOSETS: In janitor spaces/room/closets, provide at minimum, a service sink with heavy duty shelf and wall hung mop and broom rack(s).

5.6.6. FLOOR DRAINS: As a minimum, provide floor drains in mechanical rooms and areas, janitor spaces/rooms/closets and any other area that requires drainage from fixtures or equipment, drain downs, condensate, as necessary.

5.6.7. NON-WATER USING URINALS: Urinals shall be vitreous china, wall-mounted, wall outlet, non-water using, with integral drain line connection, and with sealed replaceable cartridge or integral liquid seal trap. Either type shall use a biodegradable liquid to provide the seal and maintain a sanitary and odor-free environment. Install, test and maintain in accordance with manufacturer's recommendations. Slope the sanitary sewer branch line for non-water use urinals a minimum of 1/4 inch per foot. Do not use copper tube or pipe for drain lines that connect to the urinal. Manufacturer shall provide an operating manual and on-site training to installation operations personnel for the proper care and maintenance of the urinal. For complexes, non-water using urinals are not required for barracks type spaces.

5.6.8. BUILDING WATER USE REDUCTION. Reduce building potable water use in each building 20 percent using IPC 2006 fixture performance requirements baseline except where precluded by other project requirements.

5.6.9. Do not use engineered vent or Sovent® type drainage systems.

5.6.10. Where the seasonal design temperature of the cold water entering a building is below the seasonal design dew point of the indoor ambient air, and where condensate drip will cause damage or create a hazard, insulate plumbing piping with a vapor barrier type of insulation to prevent condensation. Do not locate water or drainage piping over electrical wiring or equipment unless adequate protection against water (including condensation) damage is provided. Insulation alone is not adequate protection against condensation. Follow ASHRAE Fundamentals Chapter 23, Insulation for Mechanical Systems, IMC paragraph 1107 and International Energy Conservation Code for pipe insulation requirements.

5.7. ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

5.7.1. STANDARDS AND CODES: The electrical systems for all facilities shall conform to APPLICABLE CRITERIA.

5.7.2. MATERIALS AND EQUIPMENT: Materials, equipment and devices shall, as a minimum, meet the requirements of Underwriters Laboratories (UL) where UL standards are established for those items. Wiring for branch circuits shall be copper. Motors larger than one-half horsepower shall be three phase. All electrical systems shall be pre-wired and fully operational unless otherwise indicated. Wall mounted electrical devices (power

receptacles, communication outlets and CATV outlets) shall have matching colors, mounting heights and faceplates.

5.7.3. POWER SERVICE: Primary service from the base electrical distribution system to the pad-mounted transformer and secondary service from the transformer to the building service electrical equipment room shall be underground. See paragraph 6 for additional site electrical requirements.

5.7.3.1. Spare Capacity: Provide 10% space for future circuit breakers in all panelboards serving residential areas of buildings and 15% spaces in all other panelboards.

5.7.4. TELECOMMUNICATION SERVICE: The project's facilities must connect to the Installation telecommunications (voice and data) system through the outside plant (OSP) telecommunications underground infrastructure cabling system per the I3A Criteria. Connect to the OSP cabling system from each facility main cross connect located in the telecommunications room.

5.7.5. LIGHTING: Lighting shall comply with the recommendations of the Illumination Engineering Society of North America (IESNA).

5.7.5.1. Interior Lighting: Interior lighting shall utilize electronic ballast and energy efficient fluorescent lamps with a Correlated Color Temperature of 4100K. Compact fluorescent fixtures shall have a Color Rendering Index of (CRI) of 82 or higher. Linear fluorescent fixtures shall have a CRI of 85 or higher. Fluorescent lamps shall be the low mercury type qualifying as non-hazardous waste upon disposal. Surface mounted fixtures shall not be used on acoustical tile ceilings. An un-switched fixture with emergency ballast shall be provided at each entrance to the building.

5.7.6. TELECOMMUNICATION SYSTEM: All building telecommunications cabling systems (BCS) and OSP telecommunications cabling system shall conform to APPLICABLE CRITERIA to include I3A Technical Criteria and the UFC 3-580-01 Telecommunications Bldg Cabling Systems Planning/Design. An acceptable BCS encompasses, but is not limited to, copper and fiber optic (FO) entrance cable, termination equipment, copper and fiber backbone cable, copper and fiber horizontal distribution cable, workstation outlets, racks, cable management, patch panels, cable tray, cable ladder, conduits, grounding, and labeling.. Items included under OSP infrastructure encompass, but are not limited to, manhole and duct infrastructure, copper cable, fiber optic cable, cross connects, terminations, cable vaults, and copper and FO entrance cable.

5.7.6.1. Design, install, label and test all telecommunications systems in accordance with the I3A Criteria and ANSI/TIA/EIA 568, 569 ~~(includes Addendum B-1)~~, and 606 standards. A Building Industry Consulting Services International (BICSI) Registered Communications Distribution Designer (RCDD) with at least 2 yrs related experience shall develop and stamp telecommunications design, and prepare the test plan. See paragraph 5.8.2.5 for design of environmental systems for Telecommunications Rooms.

5.7.6.2. The installers assigned to the installation of the telecommunications system or any of its components shall be regularly and professionally engaged in the business of the application, installation and testing of the specified telecommunications systems and equipment. Key personnel; i.e., supervisors and lead installers assigned to the installation of this system or any of its components shall be BICSI Registered Cabling Installers, Technician Level. Submit documentation of current BICSI certification for each of the key personnel. In lieu of BICSI certification, supervisors and installers shall have a minimum of 5 years experience in the installation of the specified copper and fiber optic cable and components. They shall have factory or factory approved certification from each equipment manufacturer indicating that they are qualified to install and test the provided products.

5.7.6.3. Perform a comprehensive end to end test of all circuits to include all copper and fiber optic cables upon completion of the BCS and prior to acceptance of the facility. The BCS circuits include but are not limited to all copper and fiber optic(FO) entrance cables, termination equipment, copper and fiber backbone cable, copper and fiber horizontal distribution cable, and workstation outlets. Test in accordance with ANSI/EIA/TIA 568 standards. Use test instrumentation that meets or exceeds the standard. Submit the official test report to include test procedures, parameters tested, values, discrepancies and corrective actions in electronic format. Test and accomplish all necessary corrective actions to ensure that the government receives a fully operational, standards based, code compliant telecommunications system.

5.7.7. LIGHTNING PROTECTION SYSTEM: Provide a lightning protection system where recommended by the Lightning Risk Assessment of NFPA 780, Annex L.

5.8. HEATING, VENTILATING, AND AIR CONDITIONING

5.8.1. STANDARDS AND CODES: The HVAC system shall conform to APPLICABLE CRITERIA.

5.8.2. DESIGN CONDITIONS.

5.8.2.1. Outdoor and indoor design conditions shall be in accordance with UFC 3-410-01FA. Outdoor air and exhaust ventilation requirements for indoor air quality shall be in accordance with ASHRAE 62.1.

5.8.2.2. Design systems in geographical areas that meet the definition for high humidity in UFC 3-410-01FA in accordance with the special criteria for humid areas therein.

5.8.2.3. Cooling equipment may be oversized by up to 15 percent to account for recovery from night setforward. Heating equipment may be oversized by up to 30 percent to account for recovery from night setback. Design single zone systems and multi-zone systems to maintain an indoor design condition of 50% relative humidity for cooling only. For heating only where the indoor relative humidity is expected to fall below 20% for extended periods, add humidification to increase the indoor relative humidity to 30%. Provide ventilation air from a separate dedicated air handling unit (DOAU) for facilities using multiple single zone fan-coil type HVAC systems. Do not condition outside air through fan coil units. Avoid the use of direct expansion cooling coils in air handling units with constant running fans that handle outside air.

5.8.2.4. Locate all equipment so that service, adjustment and replacement of controls or internal components are readily accessible for easy maintenance.

5.8.2.5. Environmental Requirements for Telecommunications Rooms. Comply with ANSI/EIA/TIA 569-B and 569 ADDENDUN-B-1.

5.8.2.6. Fire dampers: dynamic type with a dynamic rating suitable for the maximum air velocity and pressure differential to which the damper is subjected. Test each fire damper with the air handling and distribution system running.

5.8.3. BUILDING AUTOMATION SYSTEM. Provide a Building Automation System consisting of a building control network , a Utility Monitoring and Control System (UMCS) , and integrate the building control network into the UMCS as specified.

The building control network shall be a single complete non-proprietary Direct Digital Control (DDC) system for control of the heating, ventilating and air conditioning (HVAC) systems as specified herein. The building control network shall be an Open implementation of LONWORKS® technology using ANSI/EIA 709.1B as the only communications protocol and use only LonMark Standard Network Variable Types (SNVTs), as defined in the LonMark® Resource Files, for communication between DDC Hardware devices to allow multi-vendor interoperability.

The UMCS shall use the IP network to perform supervisory control and monitoring of a ANSI/CEA-709.1B (LonWorks) network using LonWorks Network Services (LNS). The UMCS shall communicate with building control systems using ANSI/CEA-852 only.

5.8.3.1. The building automation system shall be open in that it is designed and installed such that the Government or its agents are able to perform repair, replacement, upgrades, and expansions of the system without further dependence on the original Contractor. This includes, but is not limited to the following:

(a) Install hardware such that individual control equipment can be replaced by similar control equipment from other equipment manufacturers with no loss of system functionality.

(b) Necessary documentation (including rights to documentation and data), configuration information, configuration tools, programs, drivers, and other software shall be licensed to and otherwise remain with the Government such that the Government or its agents are able to perform repair, replacement, upgrades, and expansions of the system without subsequent or future dependence on the Contractor.

5.8.3.2. All DDC Hardware shall:

(a) Be connected to a TP/FT-10 ANSI/EIA 709.3 control network.

(b) Communicate over the control network via ANSI/EIA 709.1B exclusively.

(c) Communicate with other DDC hardware using only SNVTs

(d) Conform to the LonMark® Interoperability Guidelines.

(e) Be locally powered; link power (over the control network) is not acceptable.

(f) Be fully configurable via standard or user-defined configuration parameter types (SCPT or UCPT), standard network variable type (SNVT) network configuration inputs (*nci*), or hardware settings on the controller itself to support the application. All settings and parameters used by the application shall be configurable via standard or user-defined configuration parameter types (SCPT or UCPT), standard network variable type (SNVT) network configuration inputs (*nci*), or hardware settings on the controller itself

(g) Provide input and output SNVTs required to support monitoring and control (including but not limited to scheduling, alarming, trending and overrides) of the application. Required SNVTs include but are not limited to: SNVT outputs for all hardware I/O, SNVT outputs for all setpoints and SNVT inputs for override of setpoints.

(h) To the greatest extent practical, not rely on the control network to perform the application..

5.8.3.3. Controllers shall be Application Specific Controllers whenever an ASC suitable for the application exists. When an ASC suitable for the application does not exist use programmable controllers or multiple application specific controllers.

5.8.3.4. Application Specific Controllers shall be LonMark Certified whenever a LonMark Certified ASC suitable for the application exists. For example, VAV controllers must be LonMark certified.

5.8.3.5. Application Specific Controllers (ASCs) shall be configurable via an LNS plug-in whenever t an ASC with an LNS plug-in suitable for the application exists.

5.8.3.6. Each scheduled system shall accept a network variable of type SNVT_occupancy and shall use this network variable to determine the occupancy mode. If the system has not received a value to this network variable for more than 60 minutes it shall default to a configured occupancy schedule.

5.8.3.7. Gateways may be used provided that each gateway communicates with and performs protocol translation for control hardware controlling one and only one package unit.

5.8.3.8. Provide a supervisory “Utility Monitoring and Control System” (UMCS) which meets the following requirements:

(a) The UMCS shall perform supervisory control and monitoring of a base-wide ANSI/CEA-709.1B (LonWorks) network using LonWorks Network Services (LNS).

(b) The UMCS shall be DIACAP certified have a Certificate of Networthiness and shall use the installation’s basewide IP network to provide connectivity between building control systems. DIACAP, Networthiness and access to the IP network shall be coordinated with the installation’s IT organization (DOIM) and the DPW.

(c) The UMCS monitoring and control (M&C) software shall be a LonWorks Network Services (LNS)-compatible client-server software package that performs supervisory monitoring and control functions including but not limited to Scheduling, Alarm Handling, Alarm Generation, Trending, Report Generation and Electrical Peak Demand Limiting. The software shall be expandable in both number of points and number of clients supported in order to support system expansion. The M&C Software may include drivers to other (non-ANSI/CEA-709.1B) protocols.

(d) The software shall be capable of scheduling SNVTs such that it can change the value of a SNVT according to an internal schedule.

(e) The software shall be capable of handling alarms by providing an alarm notification via a pop-up to a user display, printing to a printer, sending an email and sending a numeric page.

(f) The system shall include a Graphical User Interface which allows for hierarchical graphical navigation between systems, graphical representations of systems, access to real-time data for systems, ability to override

points in a system, and access to all supervisory monitoring and control functions. Each system display shall clearly distinguish between the following point data types and information: Real-time data, User-entered data, Overridden or operator-disabled points, Devices in alarm (unacknowledged), and Out-of-range, bad, or missing data. The software shall allow the user to create, modify, and delete displays and graphic symbols. Data on graphics pages shall be no more than 10 seconds behind real time.

(g) Provide a network configuration tool. This software shall use LonWorks Network Services (LNS) for all network configuration and management of ANSI/CEA-709.1B devices, be capable of executing LNS plug-ins, and be capable of performing network database reconstruction of an ANSI/CEA-709.1B control network.

5.8.3.9. Perform all necessary actions needed to fully integrate the building control system. These actions include but are not limited to:

- Configure M&C Software functionality including: graphical pages for System Graphic Displays including overrides, alarm handling, scheduling, trends for critical values needing long-term or permanent monitoring via trends, and demand limiting.
- Install IP routers or ANSI/CEA-852 routers as needed to connect the building control network to the UMCS IP network. Routers shall be capable of configuration via DHCP and use of an ANSI/CEA-852 configuration server but shall not rely on these services for configuration. All communication between the UMCS and building networks shall be via the ANSI/CEA-709.1B protocol over the IP network in accordance with ANSI/CEA-852.

5.8.3.10. Provide the following to the Government for review prior to acceptance of the system:

- The latest version of all software and user manuals required to program, configure and operate the system.
- Points Schedule drawing that shows every DDC Hardware device. The Points Schedule shall contain the following information as a minimum:
    - Device address and NodeID.
    - Input and Output SNVTs including SNVT Name, Type and Description.
    - Hardware I/O, including Type (AI, AO, BI, BO) and Description.
    - Alarm information including alarm limits and SNVT information.
    - Supervisory control information including SNVTs for trending and overrides.
    - Configuration parameters (for devices without LNS plug-ins) Example Points Schedules are available at https://eko.usace.army.mil/fa/besc/
- Riser diagram of the network showing all network cabling and hardware. Label hardware with ANSI.CEA-709.1 addresses, IP addresses, and network names.
- Control System Schematic diagram and Sequence of Operation for each HVAC system.
- Operation and Maintenance Instructions including procedures for system start-up, operation and shut-down, a routine maintenance checklist, and a qualified service organization list.
- LONWORKS® Network Services (LNS®) database for the completed system.
- Quality Control (QC) checklist (below) completed by the Contractor's Chief Quality Control (QC) Representative

**Table 5-1: QC Checklist**

| Instructions: Initial each item, sign and date verifying that the requirements have been met. | | |
|---|---|---|
| # | Description | Initials |
| | | |
| 1 | All DDC Hardware is installed on a TP/FT-10 local control bus. | |
| 2 | Communication between DDC Hardware is only via EIA 709.1B using SNVTs. Other protocols and network variables other than SNVTs have not been used. | |
| 3 | All sequences are performed using DDC Hardware. | |
| 4 | LNS Database is up-to-date and accurately represents the final installed system | |
| 5 | All software has been licensed to the Government | |
| 6 | M&C software monitoring displays have been created for all building systems, including all override and display points indicated on Points Schedule drawings. | |
| 7 | Final As-built Drawings accurately represent the final installed system. | |
| 8 | O&M Instructions have been completed and submitted. | |
| 9 | Connections between the UMCS IP network and ANSI/CEA-709.1B building networks are through ANSI/CEA-852 Routers. | |
| | | |
| By signing below I verify that all requirements of the contract, including but not limited to the above, been met. | | |
| Signature:_____ Date:_____ | | |

| Instructions: Initial each item, sign and date verifying that the requirements have been met. | | |
|---|---|---|
| # | Description | Initials |
| | | |
| 1 | All DDC Hardware is installed on a TP/FT-10 local control bus. | |
| 2 | Communication between DDC Hardware is only via EIA 709.1B using SNVTs. Other protocols and network variables other than SNVTs have not been used. | |
| 3 | All sequences are performed using DDC Hardware. | |
| 4 | LNS Database is up-to-date and accurately represents the final installed system | |
| 5 | All software has been licensed to the Government | |
| 6 | M&C software monitoring displays have been created for all building systems, including all override and display points indicated on Points Schedule drawings. | |
| 7 | Final As-built Drawings accurately represent the final installed system. | |
| 8 | O&M Instructions have been completed and submitted. | |
| 9 | Connections between the UMCS IP network and ANSI/CEA-709.1B building networks are through ANSI/CEA-852 Routers. | |
| 10 | LonWorks Network Services (LNS) based M&C software was provided | |
| 11 | The M&C software is covered under a DIACAP and has a certificate of Networthiness | |
| By signing below I verify that all requirements of the contract, including but not limited to the above, been met. | | |
| Signature:_____ Date:_____ | | |

5.8.3.11. Perform a Performance Verification Test (PVT) under Government supervision prior to system acceptance. During the PVT demonstrate that the system performs as specified, including but not limited to demonstrating that the system is Open and correctly performs the Sequences of Operation.

5.8.3.12. Provide a 1 year unconditional warranty on the installed system and on all service call work. The warranty shall include labor and material necessary to restore the equipment involved in the initial service call to a fully operable condition.

5.8.3.13. Provide training at the project site on the installed building system and UMCS Upon completion of this training each student, using appropriate documentation, should be able to start the system, operate the system, recover the system after a failure, perform routine maintenance and describe the specific hardware, architecture and operation of the system. Operation of the UMCS includes but is not limited to

- Configuring and managing alarms

- Configuring schedules
- Creation and modification of trends
- Creation of reports
- Performing operator overrides.

5.8.4. TESTING, ADJUSTING AND BALANCING. Test and balance air and hydronic systems, using a firm certified for testing and balancing by the Associated Air Balance Council (AABC), National Environmental Balancing Bureau (NEBB), or the Testing Adjusting, and Balancing Bureau (TABB). The prime contractor shall hire the TAB firm directly, not through a subcontractor. Perform TAB in accordance with the requirements of the standard under which the TAB Firm's qualifications are approved, i.e., AABC MN-1, NEBB TABES, or SMACNA HVACTAB unless otherwise specified herein. All recommendations and suggested practices contained in the TAB Standard shall be considered mandatory. Use the provisions of the TAB Standard, including checklists, report forms, etc., as nearly as practicable to satisfy the Contract requirements. Use the TAB Standard for all aspects of TAB, including qualifications for the TAB Firm and Specialist and calibration of TAB instruments. Where the instrument manufacturer calibration recommendations are more stringent than those listed in the TAB Standard, adhere to the manufacturer's recommendations. All quality assurance provisions of the TAB Standard such as performance guarantees shall be part of this contract. For systems or system components not covered in the TAB Standard, the TAB Specialist shall develop TAB procedures. Where new procedures, requirements, etc., applicable to the Contract requirements have been published or adopted by the body responsible for the TAB Standard used (AABC, NEBB, or TABB), the requirements and recommendations contained in these procedures and requirements are mandatory.

5.8.5. COMMISSIONING: Commission all HVAC systems and equipment, including controls, and all systems requiring commissioning for LEED Fundamental commissioning, in accordance with ASHRAE Guideline 1.1, ASHRAE Guideline 0 and LEED. Do not use the sampling techniques discussed in ASHRAE Guideline 1.1 and in ASHRAE Guideline 0. Commission 100% of the HVAC controls and equipment. The Contractor shall hire the Commissioning Authority (CA), certified as a CA by AABC, NEBB, or TABB, as described in Guideline 1.1. The CA will be an independent contractor and not an employee or subcontractor of the Contractor or any other subcontractor on this project, including the design professionals (i.e., the DOR or their firm(s)). The Contracting Officer’s Representative will act as the Owner’s representative in performance of duties spelled out under OWNER in Annex F of ASHRAE Guideline 0.

5.9. ENERGY CONSERVATION

5.9.1. The building including the building envelope, HVAC systems, service water heating, power, and lighting systems shall meet the Mandatory Provisions and the Prescriptive Path requirements of ASHRAE 90.1. Substantiation requirements are defined in Section 01 33 16, Design After Award.

5.9.2. Design all building systems and elements to meet the minimum requirements of ANSI/ASHRAE/IESNA 90.1. Design the buildings, including the building envelope, HVAC systems, service water heating, power, and lighting systems to achieve an energy consumption that is at least 30% below the consumption of a baseline building meeting the minimum requirements of ANSI/ASHRAE/IESNA Standard 90.1. Energy calculation methodologies and substantiation requirements are defined in Section 01 33 16, Design After Award.

5.9.3. Purchase Energy Star or FEMP designated products. The term “Energy Star product” means a product that is rated for energy efficiency under an Energy Star program. The term “FEMP designated product” means a product that is designated under the Federal Energy Management Program of the Department of Energy as being among the highest 25 percent of equivalent products for energy efficiency. When selecting integral sized electric motors, choose NEMA PREMIUM type motors that conform to NEMA MG 1, minimum Class F insulation system. Motors with efficiencies lower than the NEMA PREMIUM standard may only be used in unique applications that require a high constant torque speed ratio (e.g., inverter duty or vector duty type motors that conform to NEMA MG 1, Part 30 or Part 31).

5.9.4. Solar Hot Water Heating. Provide at least 30% of the domestic hot water requirements through solar heating methodologies, unless the results of a Life Cycle Cost Analysis (LCCA) developed utilizing the Building Life Cycle Cost Program (BLCC) which demonstrates that the solar hot water system is not life cycle cost effective in comparison with other hot water heating systems. The type of system will be established during the contract or task order competition and award phase, including submission of an LCCA for government evaluation to justify non-selection of solar hot water heating. The LCCA uses a study period of 25 years and the Appendix K utility cost

information. The LCCA shall include life cycle cost comparisons to a baseline system to provide domestic hot water without solar components, analyzing at least three different methodologies for providing solar hot water to compare against the baseline system.

5.9.5. Process Water Conservation. When potable water is used to improve a building's energy efficiency, employ lifecycle cost effective water conservation measures, except where precluded by other project requirements.

5.9.6. Renewable Energy Features. The Government's goal is to implement on-site renewable energy generation for Government use when lifecycle cost effective. See Paragraph 6, PROJECT SPECIFIC REQUIREMENTS for renewable energy requirements for this project.

5.10. FIRE PROTECTION

5.10.1. STANDARDS AND CODES The fire protection system shall conform to APPLICABLE CRITERIA.

5.10.2. Inspect and test all fire suppression equipment and systems, fire pumps, and fire alarm and detection systems in accordance with the applicable NFPA standards. The fire protection engineer of record shall witness final tests. The fire protection engineer of record shall certify that the equipment and systems are fully operational and meet the contract requirements. Two weeks prior to each final test, the contractor shall notify, in writing, the installation fire department and the installation public work representative of the test and invite them to witness the test.

5.10.3. Fire Extinguisher Cabinets: Provide fire extinguisher cabinets and locations for hanging portable fire extinguishers in accordance with NFPA 10 Standard for Portable Fire Extinguishers.

5.10.4. Fire alarm and detection system: Required fire alarm and detection systems shall be the addressable type. Fire alarm initiating devices, such as smoke detectors, heat detectors and manual pull stations shall be addressable. When the system is in alarm condition, the system shall annunciate the type and location of each alarm initiating device. Sprinkler water flow alarms shall be zoned by building and by floor. Supervisory alarm initiating devices, such as valve supervisory switches, fire pump running alarm, low-air pressure on dry sprinkler system, etc. shall be zoned by type and by room location.

5.10.5. Fire Protection Engineer Qualifications: In accordance with UFC 3-600-01, FIRE PROTECTION ENGINEERING FOR FACILITIES**,** the fire protection engineer of record shall be a registered professional engineer (P.E.) who has passed the fire protection engineering written examination administered by the National Council of Examiners for Engineering and Surveys (NCEES), or a registered P.E. in a related engineering discipline with a minimum of 5 years experience, dedicated to fire protection engineering that can be verified with documentation.

5.11. SUSTAINABLE DESIGN

5.11.1. STANDARDS AND CODES: Sustainable design shall conform to APPLICABLE CRITERIA. See paragraph 6, PROJECT-SPECIFIC REQUIREMENTS for which version of LEED applies to this project. The LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects (AGMBC) applies to all projects. Averaging may be used for LEED compliance as permitted by the AGMBC but is restricted to only those buildings included in this project. Each building must individually comply with the requirements of paragraphs ENERGY CONSERVATION and BUILDING WATER USE REDUCTION.

5.11.2. LEED RATING, REGISTRATION, VALIDATION AND CERTIFICATION: See Paragraph PROJECT-SPECIFIC REQUIREMENTS for project minimum LEED rating/achievement level, for facilities that are exempt from the minimum LEED rating, for LEED registration and LEED certification requirements and for other project-specific information and requirements.

5.11.2.1. Innovation and Design Credits. LEED Innovation and Design (ID) credits are acceptable only if they are supported by formal written approval by GBCI (either published in USGBC Innovation and Design Credit Catalog or accompanied by a formal ruling from GBCI). LEED ID credits that require any Owner actions or commitments are acceptable only when Owner commitment is indicated in paragraph PROJECT-SPECIFIC REQUIREMENTS or Appendix LEED Project Credit Guidance

5.11.3. OPTIMIZE ENERGY PERFORMANCE. : Project must earn, as a minimum, the points associated with compliance with paragraph ENERGY CONSERVATION. LEED documentation differs from documentation requirements for paragraph ENERGY CONSERVATION and both must be provided. For LEED-NC v2.2 projects you may substitute ASHRAE 90.1 2007 Appendix G in its entirety for ASHRAE 90.1 2004 in accordance with USGBC Credit Interpretation Ruling dated 4/23/2008.

5.11.4. COMMISSIONING. See paragraph 5.8.5 COMMISSIONING for commissioning requirements. USACE templates for the required Basis of Design document and Commissioning Plan documents are available at http://en.sas.usace.army.mil (click on Engineering Criteria) and may be used at Contractor's option.

5.11.5. DAYLIGHTING. Except where precluded by other project requirements, do the following in at least 75 percent of all spaces occupied for critical visual tasks: achieve a 2 percent glazing factor (calculated in accordance with LEED credit EQ8.1) OR earn LEED Daylighting credit, provide appropriate glare control and provide either automatic dimming controls or occupant-accessible manual lighting controls.

5.11.6. LOW-EMITTING MATERIALS. Except where precluded by other project requirements, use materials with low pollutant emissions, including but not limited to composite wood products, adhesives, sealants, interior paints and finishes, carpet systems and furnishings,

5.11.7. CONSTRUCTION INDOOR AIR QUALITY MANAGEMENT. Except where precluded by other project requirements, earn LEED credit EQ 3.1 Construction IAQ Management Plan, During Construction and credit EQ 3.2 Construction IAQ Management Plan, Before Occupancy.

5.11.8. RECYCLED CONTENT. In addition to complying with section RECYCLED/RECOVERED MATERIALS, earn LEED credit MR4.1, Recycled Content, 10 percent except where precluded by other project requirements.

5.11.9. BIOBASED AND ENVIRONMENTALLY PREFERABLE PRODUCTS. Except where precluded by other project requirements, use materials with biobased content, materials with rapidly renewable content, FSC certified wood products and products that have a lesser or reduced effect on human health and the environment over their lifecycle to the maximum extent practicable.

5.11.10. FEDERAL BIOBASED PRODUCTS PREFERRED PROCUREMENT PROGRAM (FB4P). The Farm Security and Rural Investment Act (FSRIA) of 2002 required the U.S. Department of Agriculture (USDA) to create procurement preferences for biobased products that are applicable to all federal procurement (to designate products for biobased content). For all designated products that are used in this project, meet USDA biobased content rules for them except use of a designated product with USDA biobased content is not required if the biobased product (a) is not available within a reasonable time, (b) fails to meet performance standard or (c) is available only at an unreasonable price. For biobased content product designations, see http://www.biopreferred.gov/ProposedAndFinalItemDesignations.aspx.

5.12. CONSTRUCTION AND DEMOLITION (C&D) WASTE MANAGEMENT: Achievement of 50% diversion, by weight, of all non-hazardous C&D waste debris is required. Reuse of excess soils, recycling of vegetation, alternative daily cover, and wood to energy are not considered diversion in this context, however the Contractor must tracked and report it. A waste management plan and waste diversion reports are required, as detailed in Section 01 57 20.00 10, ENVIRONMENTAL PROTECTION.

5.13. SECURITY (ANTI-TERRORISM STANDARDS): Unless otherwise specified in Project Specific Requirements, only the minimum protective measures as specified by the current Department of Defense Minimum Antiterrorism Standards for Buildings, UFC 4-010-01, are required for this project. The element of those standards that has the most significant impact on project planning is providing protection against explosives effects. That protection can either be achieved using conventional construction (including specific window requirements) in conjunction with establishing relatively large standoff distances to parking, roadways, and installation perimeters or through building hardening, which will allow lesser standoff distances. Even with the latter, the minimum standoff distances cannot be encroached upon. These setbacks will establish the maximum buildable area. All standards in Appendix B of UFC 4-010-01 must be followed and as many of the recommendations in Appendix C that can reasonably be accommodated should be included. The facility requirements listed in these specifications assume that the minimum standoff distances can be met, permitting conventional construction. Lesser standoff distances (with specific minimums) are not desired, however can be provided, but will require structural hardening for the

building. See Project Specific Requirements for project specific siting constraints. The following list highlights the major points but the detailed requirements as presented in Appendix B of UFC 4-010-01 must be followed.

(a) Standoff distance from roads, parking and installation perimeter; and/or structural blast mitigation

(b) Blast resistant windows and skylights, including glazing, frames, anchors, and supports

(c) Progressive collapse resistance for all facilities 3 stories or higher

(d) Mass notification system (shall also conform to UFC 4-021-01, Mass Notification Systems)

(e) For facilities with mailrooms (see paragraph 3 for applicability) – mailrooms have separate HVAC systems and are sealed from rest of building

End of Section 01 11 00

## 6.0 PROJECT SPECIFIC REQUIREMENTS FORT BRAGG, NC (REV 1.0 – 30 SEP 2009)

### 6.1. GENERAL

The requirements of this paragraph augment the requirements indicated in Paragraphs 3 through 5.

### 6.2. APPROVED DEVIATIONS

The following are approved deviations from the requirements stated in Paragraphs 3 through 5 that only apply to this project.

None

### 6.3. SITE PLANNING AND DESIGN

6.3.1. General: Fort Braggs' strategic goal is to achieve a "sustainable community - meeting the needs of the Soldier today, tomorrow and forever." To achieve this goal, Fort Bragg's philosophy is to apply systematic considerations of environmental impact, energy use, natural resources, economy, and quality of life so the end result is a sustainable community by:

(a) Creating and enhancing sustainable training and urban areas to ensure military readiness and promote compatible growth of the surrounding community

(b) Becoming the model sustainable military community by using sustainable principles throughout the life cycle of all facilities and supporting infrastructure

(c) Achieving zero waste through acquisition and management of materials and commodities which throughout their lifecycle creates no additional waste nor requires resources for disposal

(d) Supplying reliable services and infrastructure with no negative impacts while aggressively reducing overall demand.

(e) Building a sustainable world-class ground transportation network providing seamless transition between multiple modes of travel while reducing harmful emissions

(f) Creating a culture which fosters sustainable life style to enhance the quality of life of the Fort Bragg community. This encompasses the social, mental, physical and spiritual well-being of its members.

(g) Minimize environmental impacts to natural resources using strategic planning and sustainable design to reduce project footprint ("clearing limits").

6.3.1.1. Fort Bragg's sustainable community objectives are energy savings, water savings/reuse; low-emitting, nontoxic materials, reusable/recyclable building materials, tie in to "community" sustainability features (e.g. continuance of bikes lanes/walking paths), minimize turf areas/water intensive landscapes, use of native plants, and use low-impact development strategies for stormwater management.

6.3.1.2. Design Principles

(a) Plan and design site in a sustainable manner in accordance with all applicable references. The planning and design shall incorporate appropriate measures to address endangered, threatened, and special concern species; energy efficiency and renewable generation; materials reuse; multimodal transportation; native wildlife habitat protection and restoration; pollution prevention; public health and safety; water resources protection and restoration; and water use efficiency.

(b) Sustainable site plan, planning, design and development will address the need to conserve green space, preserve remnant old-growth trees, protect endangered species and wetlands, provide for greenways and link corridors of existing natural habitat for recreational value, quality of life and for wildlife/plants conservation. Sustainable site planning should include green space planning, and corridor development for recreational use and wildlife benefits Construction footprint shall minimize disturbance to soils to the maximum extent practicable in support of the installation sustainability goals.

(c) Base site design on the Beaux-Arts principles of balance, axial arrangements, symmetry, and site lines.

(d) Plant native trees, shrubs and grasses in accordance with Fort Bragg's plant list palette. See Appendix I. Theme tree emphasis will favor longleaf pine to support ecosystem management policy, sustainability, endangered species conservation, and sustainable communities.

(e) Historic District Facilities within the Old Post Historic District and/or the view shed of the Old Post Historic District are subject to the Old Post Historic District Design Guidelines. Facility construction in the Old Post Historic District or view shed of the Old Post Historic District will require SHPO consultation which requires a minimum of 30 days.

6.3.2. Site Structures and Amenities

6.3.2.1. Supporting site structures shall preferentially include EPA-designated recovered materials products, USDA-designated bio-based products, and environmentally preferable products.

6.3.2.2. Supporting site structures shall utilize the same building materials and characteristics as the adjacent buildings. Provide the following site structures and amenities:

(a) Dumpster Screening shall match or compliment the surrounding facilities and current dumpster systems in the area. Locate dumpster pad to minimize backing of trash transfer vehicles. Locate dumpster pads and screening in accordance with setbacks in UFC 4-010-01. Access to dumpster pads should not be thru parking lots whenever possible to preclude mixing of large trucks, POVs, and GOVs. BARRACKS – provide one (1) dumpster per 50 sleeping spaces

6.3.2.3. Exterior Signage

(a) Provide one Type-A sign as depicted in Appendix H at the barracks building.

6.3.2.4. Provide one concrete half basketball court with a 3-foot concrete shoulder border inside the barracks limits of construction. The basketball court marking and goal dimension shall be designed to meet NCAA standards.

6.3.2.5. Provide one picnic shelter per barracks. Picnic shelter shall include a non gas-fired grill, permanently mounted picnic table with integral benches with seating capacity for six, permanent exterior garbage bin capable of holding metal garbage can with lid: photo electric light (no switch), and electrical receptacle.

6.3.2.6. Provide one beach sand volleyball court within the barracks limits of construction. The volleyball court shall designed meet official dimension of the United States Volleyball Association.

6.3.3. Site Functional Requirements:

6.3.3.1. Stormwater Management Systems. The project shall be meet National Pollutant Discharge Elimination System (NPDES) requirements for stormwater Management and Quality.

(a) Follow the NPDES General stormwater permit requirements and all other associated NPDES permit requirements.

(b) Comply with Ft. Bragg’s NPDES Phase II permit requirements for stormwater Management and Quality and meet the NPDES Phase II requirements for Post Construction.

(c) Comply with the Fort Bragg stormwater management plan; copy in effect at the time of award.

(d) Comply with the NPDES General stormwater permit (temporary for construction) which includes the requirements to record rainfall events at the site, visually monitor and maintain records of the stormwater discharge, and maintain a log of the corrective actions required to remain in compliance.

(e) Employ Low Impact Design (LID) to the Maximum Extent Practicable within the Contract Cost Limitation. Stormwater management shall focus on infiltration of stormwater runoff. The stormwater management system design, construction, and operation should facilitate the site post-development hydrologic response mimicking the site predevelopment hydrologic response. This hydrologic response parameters of focus are the character, constituents, and quantity of stormwater runoff; character (shape/form, magnitude) of the runoff hydrograph, constituents (nutrients/sediments/pollutants) of the runoff flow, quantity (volume) of stormwater discharge.-

(f) Post development infiltration of stormwater in excess of predevelopment infiltration of stormwater is acceptable and encouraged. If above or below ground detention/retentions basins are employed, locate them within

the limits of construction for each area and do not locate under proposed future construction (i.e. buildings footprints and parking areas).

(g) Do not use the following structural stormwater management measures without prior approval of the Water Management Branch, Directorate of Public Works: permeable/pervious pavements, green roofs, non-vegetated/subsurface infiltration chambers, curb inlets, subsurface conduits, and sand filters.

(h) The following structural stormwater management measures are highly encouraged: vegetated infiltration cells, vegetated filter strips/buffers, and vegetated swales.

6.3.3.2. Erosion and Sediment Control

6.3.3.2.1. Prepare an Erosion Control Plan (ECP) in accordance with the North Carolina Erosion and Sediment Control Planning and Design Manual, latest revision, and any Fort Bragg regulations (see Appendices).

6.3.3.2.2. The North Carolina Sedimentation Control Pollution Act of 1973, decrees that any land disturbing activity over an acre must have approved sediment and erosion control plan before construction begins.

(a) The Fort Bragg Water Management Branch must approve the sediment and erosion control plan before it is submitted to the North Carolina Department of Environment and Natural Resources (NCDENR). Both agencies will review the plan(s) to ensure that all measures to retain sediment on the site during construction and all measures to prevent erosion after construction have been designed into the construction drawings. Agencies will review sediment control measures such as silt fence, temporary sediment traps, and construction entrances/exits for the proper sizing and installation.

(b) Once the plan(s) is approved, the Ft. Bragg Water Management Branch and the NCDENR will inspect construction to ensure that all work is performed in adherence to the approved plan.

(c) The site shall meet the High Density Design Requirements as described in the July 2007 edition of North Carolina Stormwater Best Management Practices Manual.

6.3.4. Site Structures and Amenities

6.3.1. Stormwater Management Systems

For volume control, an on-site storm water retention/detention system shall be required. Design criteria for storage facilities shall follow the Ft. Campbell Design Guide, Chapter 3, Division 02000, Section 02630, Storm Drainage System. The contractor shall take special note of the Precipitation Frequency Estimates and the required Pre-developed curve number included in the policy.

6.3.2. Grading and Drainage

The grading should maintain existing topography while recognizing standard gradients. There should be a balance of the quantity of cut and fill which would create a smooth transition of graded areas into the existing natural terrain. The plan should reflect selective site clearing that preserves groups of trees. Grading should manage site runoff to maintain the rate and quantity of flow to pre-development levels, or reduce site runoff where possible. The principles of positive drainage should be applied to control the conditions that remove rainfall away from facilities and functions. Lawn sheet flow shall not flow over sidewalks or paved areas. New parking areas shall not drain onto existing streets and existing streets shall not drain into new parking areas. Site designs should seek to minimize the disturbance of land, utilize natural drainage paths where possible, and take into account future construction in the area. Additionally, minimize the impact of construction activities on drainage and prevent loss of soils by water and wind erosion. Designs that improve on existing water quality by incorporating sustainable design principles are encouraged, consistent with budget constraints and activity requirements.

6.3.3. Erosion and Sediment Control

The Ft. Campbell Environmental Division of Public Works overseas the Stormwater Sediment and Erosion Control Management Plan for the Post. In 2003, Ft. Campbell was issued permit coverage under the Tennessee Phase II MS4 general permit through February 2008 and Kentucky Phase II SMS4 general permit through December 2007. In order to comply with the provisions of the state and EPA NPDES permits, all construction projects must comply with the provisions of the “Fort Campbell Policy for Storm Water Erosion and Sediment Control at Construction Projects” developed by Ft. Campbell DPW. These provisions include preparation of a project specific Storm Water Pollution Prevention Plan (SWPPP) and enforcement of the plan components.

All erosion and sediment control devices shall be installed and maintained in accordance with the Fort Campbell Policy for Storm Water Erosion and Sediment Control at Construction Sites.

6.3.4. Vehicular Circulation and Pavement Design

6.3.4.1 Vehicular Circulation layout is determined by applying the design vehicle templates to the site design. The passenger car class includes passenger cars and light trucks, such as vans and pick-ups. The passenger car template is equivalent to the non-organizational - privately owned vehicle (POV). The truck class template includes single-unit trucks, recreation vehicles, buses, truck tractor-semi-trailer combinations, and trucks or truck tractors with semi-trailers in combination with full trailers. Templates showing the turning movements for design vehicles are provided by the American Association of State Highway and Transportation Officials (AASHTO). Obtain templates and utilize them during the design of the facility. Provide the vehicle clearances that are required to meet traffic safety for emergency vehicles, service vehicles, and moving vans. Site entrances and site drive aisles shall include required traffic control signage. Maximize spacing between drives, incorporate right-angle turns, and limit points of conflict between traffic. Provide a drop-off area near the entrance of building meeting the requirements of UFC 4-010-01.

6.3.4.2 Pavement Design plans and specifications shall detail all of the specific aggregates proposed in the pavement design per state DOT designations and gradations including the aggregate used to choke off drainage layer aggregates to accomodate paving equipment.

This paragraph is to inform the DB contractor that often SUPERPAVE is the method used for pavement projects. It is our experience on several occasions that "selected binder grade" (SUPERPAVE terminology) used has been incorrect resulting in rutting and/or excessive cracking. Often state DOT specifications do not appropriately address this issue and therefore can not be singularly depended on for an acceptable product. Therefore, if SUPERPAVE is utilized, it is essential that the DB contractor use appropriate SUPERPAVE design techniques.

The new California Rd asphalt cross section design shall contain at a minimum a 14' center turn lane, two 12' traffic lanes, and two 8' shoulders.

6.3.5. Sidewalk Design

The network of walk throughout the complex shall be designed to facilitate pedestrian traffic among facilities, and minimize the need to use vehicles. Minimum sidewalk width shall be 4 feet.

6.3.6. Site Structures and Amenities

Provide the following site structures and amenities

6.3.6.1. Provide a dumpster enclosure at each building. Dumpster enclosures shall be located per UFC 4-010-01. Dumpster enclosure should be compatible with the building they serve and accessible by vehicle.

6.3.7. Soil Compaction and Foundation Excavations

Soil Compaction shall be achieved by equipment approved by a professional geotechnical engineer. Material shall be moistened or aerated as necessary to provide the moisture content that shall readily facilitate obtaining the compaction specified with the equipment used. Each layer of fill placement shall be no greater than 8 inches thick. Compact each layer to not less than the percent of maximum density specified in Table 6.3.7-1, determined in accordance with ASTM D-1557}.

Table 6.3.7-1 Soil Compaction

Foundations 95%

Concrete Work and Pavements 90%

Landscaping 85%

Retaining Wall Backfill 85 - 90%

The requirements shall be verified or modifications recommended by the consulting professional geotechnical engineer in the report whenever engineering, soils or climatic factors indicate the necessity. Any modifications to the stated compaction requirements shall require approval from the COR.

Subgrade suitability (by proof rolling operations), fill placement and compaction operations shall be observed and tested on a full time basis by a qualified independent testing agency as directed by the Contractor's project geotechnical engineer.

During construction, all foundation excavations shall be inspected and approved by the Contractor's project professional geotechnical engineer prior to placing concrete.

6.3.8. Clearing and Grubbing

Clear and grub all trees and vegetation necessary for construction; but, save as many trees as possible. Trees to be saved during the construction process should be protected from equipment. Prior to award of this contract marketable trees 14" in diameter and above will be harvested by others. Stumps and unmarketable portions of trees will remain on site.

6.3.9. Wetlands

Jurisdictional wetlands have not been identified on the project site.

6.3.10. Landscaping

Landscaping shall be in accordance with The Ft. Campbell Technical Design Guide Chapter 3, Division 02000, Section 02930, Exterior Planting. A plant list of allowable plants is included in The Ft. Campbell Technical Design Guide for the Contractor's use. The offeror shall obtain and use the services of a qualified landscape architect, experienced in site planning and planting design. A complete, integrated landscape-planting plan consisting of trees only shall be provided for the overall project. The design shall reflect appropriate groupings and street tree plantings to define the open spaces. Choose tree materials on the basis of plant hardiness, climate, soil conditions, low maintenance, and quality. Selected tree materials shall be easily maintained and tolerant of the specific site conditions. Incorporate sustainable design principles into the selection of plants. Planting shall occur only during periods when beneficial results can be obtained.

6.3.10.1. Maintenance During Planting Operation.

Installed plants shall be maintained in a healthy growing condition. Maintenance operations shall begin immediately after each plant is installed and shall continue until the plant establishment period commences.

6.3.10.2. Plant Establishment Period.

On completion of the last day of the planting operation, the plant establishment period for maintaining installed plants in a healthy growing condition shall commence and shall be in effect for the remaining contract time period not to exceed 12 months. When the planting operation extends over more than one season or there is a variance to the planting times, the plant establishment periods shall be established for the work completed.

6.3.10.3. Maintenance During Establishment Period.

The maintenance of plants shall include straightening plants, tightening stakes and guying material, repairing tree wrap, protecting plant areas from erosion, maintaining erosion material, supplementing mulch, accomplishing wound dressing, removing dead or broken tip growth by pruning, maintaining edging of beds, checking for girdling of plants and maintaining plant labels, watering, weeding, removing and replacing unhealthy plants.

6.3.10.4. Unhealthy Tree.

A tree shall be considered unhealthy or dead when the main leader has died back, or 25 percent of the crown is dead. Determine the cause for an unhealthy plant. Unhealthy or dead plants shall be removed immediately and shall be replaced as soon as seasonal conditions permit in accordance with the following warranty paragraph.

6.3.10.5. Warranty.

Furnished plant material shall be guaranteed to be in a vigorous growing condition for a period of 12 months regardless of the contract time period. A plant shall be replaced one time under this guarantee. Transplanting existing plants requires no guarantee.

6.3.11. Turf

6.3.11.1. Seed

State approved seed of the latest season's crop shall be provided in the original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with applicable State seed laws. Seed mixtures shall be proportioned by weight. Weed seed shall not exceed one percent by weight of the total mixture.

6.3.11.2. Sod.

State approved sod shall be provided as classified by applicable State laws. Each individual sod section shall be of a size to permit rolling and lifting without breaking. The sod shall be relatively free of thatch, diseases, nematodes, soil-borne insects, weeds or undesirable plants, stones larger than 2 inches in any dimension, woody plant roots, and other material detrimental to a healthy stand of turf. Sod that has become dry, moldy, or yellow from heating, or has irregular shaped pieces of sod and torn or uneven ends shall be rejected. Sod shall be machine cut to a uniform thickness of 1-1/4 inches within a tolerance of 1/4 inch excluding top growth and thatch. Measurement for thickness shall exclude top growth and thatch. The limitation of time between harvesting and placing sod shall be 36 hours.

6.3.11.3. Sprig Quality

The cultivar shall be provided as healthy living stems, stolons, or rhizomes with attached roots, including two or three nodes, and shall be from 4iches to 6 inches long, without adhering soil. Sprigs shall be provided which have been grown under climatic conditions similar to those in the locality of the project. Sprigs shall be obtained from heavy and dense sod, free from weeds or other material detrimental to a healthy stand of turf. Sprigs that have been exposed to heat or excessive drying shall be rejected. The time limitation between harvesting and placing sprigs shall be 24 hours.

6.3.11.4. Temporary Turf Cover.

When there are contract delays in the turfing operation or a quick cover is required to prevent erosion, the areas designated for turf shall be seeded with a temporary seed. When no other turfing materials have been applied, the quantity of one-half of the required soil amendments shall be applied and the area tilled.

6.3.11.5. Final Turf.

The turf shall be installed during appropriate planting times and conditions recommended by the trade for the type and variety of turf specified. The turf operations shall be performed only during periods when beneficial results can be obtained. Drainage patterns shall be maintained. The turf shall be installed by using the methods as recommended by the trade for the type and variety of turf specified. Immediately after turfing, the area shall be protected against traffic or other use by erecting barricades and providing signage as required. The turf establishment period for establishing a healthy stand of turf shall begin on the first day of work under the turfing contract and shall end three months after the last day of the turfing operation. An unsatisfactory stand of turf shall be repaired as soon as turfing conditions permit.

6.3.11.6. Satisfactory Stand of Turf.

6.3.11.6.1. Seeded Lawn & Field Area.

A satisfactory stand of turf from the seeding operation for a lawn area is defined as a minimum of 200 grass plants per square meter (20 grass plants per square foot). Bare spots shall be no larger than 6 inches square. The total bare spots shall not exceed two (2) percent of the total seeded area.

6.3.11.6.2. Sodded Area.

A satisfactory stand of turf from the sodding operation is defined as living sod uniform in color and texture. Bare spots shall be no larger than 2 inches square. Sod shall be placed in all ditch flow lines and slopes, around each building, and a 10 foot strip adjacent to all structures such as curbs, sidewalks, roads, catch basins, etc.

6.3.11.6.3. Sprigged Area.

A satisfactory stand of turf from the sprigging operation is defined as a minimum of 20 sprigs per square meter (2 sprigs per square foot). Bare spots shall be no larger than 9 inches square. The total bare spots shall not exceed two (2) percent of the total sprigged area.

6.3.11.7. Maintenance During Establishment Period.

The maintenance of the turfed areas shall include eradicating weeds, eradicating insects and diseases, protecting embankments and ditches from erosion, maintaining erosion control materials and mulch, protecting turf areas from traffic, mowing, watering, post-fertilization, and replacing unsatisfactory turf areas.

6.3.12 Soil and Geotechnical Requirements

The following paragraph 6.3.12.1 shall take precedence over paragraph 5.2.2.1

6.3.12.1 A preliminary report has been prepared to characterize the surface conditions at the project site and includes subsurface data from a previous report for an adjacent site. This preliminary report is appended to these specifications. The report provides a general overview of the site, soil, and geologic conditions with detailed descriptions at discrete boring locations. The Contractor's team shall include a licensed geotechnical engineer to interpret the subsurface conditions (assuming they are consistent with the site subsurface conditions) and develop earthwork and foundation requirements and design parameters on which to base the contractor's proposal. Foundation type, pavement and earthwork requirements on which the Contractor's bid is based shall be presented in his proposal along with the resume of the geotechnical engineer. Subsequent to award, the Contractor is required to perform and provide a complete geotechnical exploration of the proposed site to develop the final design. The geotechnical exploration shall be performed under the direction of a licensed professional engineer with at least 10 years experience specializing in geotechnical engineering. This exploration shall be the full responsibility of the contractor and detailed requirements are outlined below and in Section 01010 paragraphs under

5.2.2. It is possible that site specific subsurface conditions encountered by the contractor will differ from those appended herein. Therefore, it is the responsibility of the contractor to establish a meeting with the COR subsequent to completion and evaluation of his site specific geotechnical exploration to outline any differences encountered that are not consistent with the information provided herein. Should those differences require changes in the foundation type, pavement or earthwork requirements proposed with the bid that result in more cost, these differences shall be clearly outlined for the meeting.

6.3.12.2 Cathodic Protection and Grounding Systems. The report shall include pH tests, salinity tests, resistivity measurements, etc., required to design corrosion control and grounding systems. The raw field data shall be provided in the report. The Contractor shall design all corrosion control and grounding systems required for the project.

6.3.12.3 Dewatering: The report shall determine project dewatering requirements. If temporary construction dewatering is required due to a high water table, the Contractor shall prepare and present a dewatering plan. The Contractor shall be responsible for securing all the required information necessary for the design of the system.

6.3.12.4 Borings: All borings shall be sampled with a splitspoon sampler in accordance with ASTM D-1586, with samples visually classified at 1.5 foot intervals in accordance with the Unified Soil Classification System (ASTM D 2487). The depth to water shall be recorded. Standard Penetration Blow counts shall be recorded. A dated drilling log shall be provided for each boring drilled. Soils information obtained from field logs, laboratory tests and geologist's logs shall be presented on the contract drawings in the form of boring plan, final boring logs and explanatory notes.

6.4. SITE ENGINEERING

6.4.1. Existing Topographical Conditions

6.4.1.1. See Appendix J for a topographic survey and the site plan showing this project for information only. Coordinate the design with tie in points provided. Verify the information provided and any discrepancies that are found in the furnished survey and bring this information to the immediate attention of the Contracting Officer for clarification. Any additional survey required for the complete design and construction of this project shall be the responsibility of the Contractor.

6.4.1.1 Traffic Criteria

See Appendix A for traffic criteria.

6.4.1.2 A three dimensional digital topographic and utility survey for this site has been prepared by the Government and included as a part of this contract. Any discrepancies which are found in the Government furnished survey shall be brought to the immediate attention of the Government for clarification.

6.4.2. Existing Geotechnical conditions: See Appendix A for a preliminary geotechnical report.

6.4.2.1. Verify the results of the Government supplied information provided and any bring discrepancies found in the finished survey to the immediate attention of the Contracting Officer for clarification. The provided site layout drawings are for guidance but the Contractor proposed site layout shall be similar in design

6.4.2.2. Locate primary facilities to avoid existing above and below ground utilities, government and privatized, traversing the site whenever possible.

6.4.2.3. Locate primary facilities in accordance with all AT/FP requirements.

6.4.2.4. Coordinate the new construction activities and erosion control measures with the adjacent facilities and erosion control measures.

6.4.2.5. Limits of Construction:

(a) The Limits of Construction are shown on the provided drawings. Confine all work within the Limits of construction except as needed to tap into existing utility lines or manholes.

(b) Provide drawings to Fort Bragg to coordinate locator service outside of construction limits prior to conducting any digging outside of the construction limits.

6.4.3. Fire Flow Tests See Appendix D for results of fire flow tests to use for basis of design for fire flow and domestic water supply requirements.

6.4.4. Pavement Engineering and Traffic Estimates:

6.4.4.1. A professional engineer, licensed in the State of North Carolina, shall design all rigid and flexible pavements in accordance with the Contractor's final geotechnical report.

6.4.4.2. Vehicular Parking Areas

(a) Do not use permeable pavements, including segmented pavers, pervious concrete or pervious asphalt in vehicular parking and other pavements.

(b) Design parking areas surface slopes between 0.5% and 2% with a maximum of 3% in the parking stalls. Layout parking lots so that drainage conforms to the existing general site contours to provide the maximum utilization of water gardening or bio-retention ponds on site.

(c) Hardstand slopes shall be between 0.5% and 2.0%. Slope all hardstands away from readiness and covered hardstands.

(d) Design parking lots to avoid ponding of water.

(e) Parking Area access lanes shall be a 24 ft wide minimum from the edge of pavement.

(f) Motorcycle parking spaces shall be concrete, 9' x 18' long with appropriate signage.

6.4.4.3. Emergency Vehicle Access and Service Drives. Design emergency vehicle access with NFPA, UFC 3-600-01, and as required by the Installation (FB Fire Dept is AHJ).

6.4.4.4. Vehicle Crash Barriers (as applicable to certain facility types)

(a) Locate vehicle crash barriers at all emergency vehicle access and service drives to barracks and battalion headquarters buildings and all service drives leading to the company operation facilities service yard.

(b) Vehicular crash barriers shall be pad lockable in the open and closed position and meet the minimum crash certification of K1.1/L3. Barrier arm surface shall have a rust inhibiting painted surface and shall be furnished with 4-inch wide reflective paint spaced at every 20 inches.

(c) Drop arm barrier shall be counter weighted for ease of lifting by a single person.

(d) The use of removable, bollard type barriers is not allowed. Locate AT/FP measures in accordance with applicable criteria.

6.4.4.5. Sidewalks

(a) Sidewalks shall provide an ample functional system of walks connecting structures, parking areas, streets, and other walks as pedestrian traffic demands. In addition, carefully review paths of travel between buildings within this and adjacent complexes to determine a layout of sidewalks that is sufficient to meet the likely paths of travel.

(b) Locate sidewalks a minimum of 5 feet from main roads and streets. Slope sidewalks to meet all requirements for ADAAG. Construct sidewalks of Portland Cement Concrete.

(c) Emergency vehicle access and service drives shall be a concrete sidewalk designed to support multi-story ladder trucks weighing 75,500 pounds on three axles; two axles are double tired.

6.4.4.6. Flexible Pavement Design

(a) Design heavy duty flexible pavements to support H-20 loading.

(b) Design light duty flexible pavements to support 5,000 lb axial loading.

(c) Pavement designs over cohesive soil subgrades require under-drain systems.

(d) The flexible pavement design shall be larger of the calculated flexible design thickness and the minimum flexible design thickness.

6.4.4.7. Rigid Pavement Design

(a) Design rigid pavements to support H-20 loading.

(b) The minimum pavement section shall be 6 inches rigid concrete pavement over 6 inches of compacted aggregate base course.

(c) Pavement designs over cohesive soil subgrades require under drain systems.

(d) Provide a concrete joint layout plan for all concrete pavements. Show joint spacing, joint types, and joint grading.

6.4.4.8. Additional Requirements:

Not Used

6.4.5. Traffic Signage and Pavement Markings

6.4.5.1. A Professional Engineer (PE) licensed in the State of North Carolina, qualified and experienced in traffic engineering and signal design must perform traffic signalization plans and design work to include road closure plans.

6.4.5.2. All pavement marking and road way signage shall be in compliance with the Manual of Uniform Traffic Control Devices (MUTCD) and Federal Highway Administration (FHWA) policies.

6.4.5.3. Four (4) inch thermoplastic white reflective material is the only authorized material for stripping.

6.4.6. Base Utility Information

6.4.6.1. General.

(a) Prior to interim (or final if no interim package) site design, coordinate and validate with the survey on the locations and sizes of all existing utility services, above and below ground.

(b) Install and reconnect temporary utilities for buildings which are supported by utilities which will be demolished/or relocated during construction. Coordinate service interruption two weeks in advance with the DPW.

6.4.6.2. Storm drainage service and natural gas on this installation is not privatized.

6.4.6.3. Water and Sanitary Sewer Services:

(a) Water and Sanitary Sewer services on this installation are privatized. Contact Old North Utility Services, Inc. (ONUS), 110 N. Fourth St., Spring Lake, North Carolina 28390, 910-495-1311.

(b) Provide one separate fire sprinkler service connection and one separate service connection and one separate sanitary sewer service connection per building.

(c) ONUS will act as a Prime Contractor (in a separate contract between the Government and ONUS) for design and construction of exterior potable water, fire water and exterior sanitary sewer to points of connection identified in Appendix C.

(d) Coordinate water requirements and connections with ONUS.

(e) Coordinate sewer requirements and connections with ONUS. No tapping of the existing water distribution or sanitary sewer system is authorized without prior approval of ONUS.

(f) ONUS is responsible for filing, maintaining and closing water permits and sanitary sewer permits for the project. Contact ONUS for a copy of the latest approved installation standards and specifications.

(g) Model the fire flows and inlet pressures for this facility in concert with ONUS to construct a water distribution model. Verify that the fire flow and pressure requirements for the new facility are less than or equal to the modeled flows and pressures.

6.4.6.4. Natural Gas: The existing underground gas distribution system at Fort Bragg is not privatized.

(a) Not Used

(b) Honeywell manages gas utility service laterals that feed individual buildings on Fort Bragg. The point-of-contact (POC) for information is John Gallagher at 910-436-0440 (cell 910-391-7357).

(c) Natural Gas – Simmons AAF: Honeywell also manages gas utility service on Simmons Army Air Field. The point-of-contact (POC) for information is John Gallagher.

(d) The distribution system pressure is approximately 22 psig to 30 psig. If gas is determined to be the most life-cycle cost effective alternative, the system design shall comply as follows:

(1) Contractor shall design, tie-in, layout/route and install gas distribution system up to and within the facility (including the gas meter/regulator assembly.

(2) Coordinate and field verify of site conditions prior to performing any work. See Appendix C (Utility Connection) and the site plans for additional information.

(3) Install copper or other metallic tracer wire all new non-metallic gas lines (natural and LP). Install the tracer wire below the pipe and connect from manhole to manhole (valve to valve, etc) with enough additional length for the end to reach the ground surface for the attachment of energizing equipment. Wire shall enter the manhole so it is not cut or severed during installation. Also install metallic marking tape, approximately 18 inches below ground surface.

6.4.6.5. Chilled and Hot Water. Honeywell manages Chilled and Hot Water: Chilled Water (CW), and High Temperature Water (HW) utility services on Fort Bragg. The point-of-contact (POC) for information is John Gallagher. See Appendix C, (Utility Connection) for additional information.

6.4.6.6. Communications System (Government)

(a) Communication service on this installation is owned by the Government. Design and install the Outside plant (OSP) communication infrastructure including cabling from a designated manhole into the facility main telecommunications room.

(b) Complete the design and full construction of the work including all cable taps and splicing.

(c) Provide all outside plant infrastructure including duct lines, manholes, and cabling under this contract. Extend three-way-4 inch encased service duct lines from each building's main communications room to the existing infrastructure in the site vicinity.

6.4.6.7. Cable Television (CATV) Service

(a) Extend one 4-inch duct from the CATV backboard to the building 5 foot line and cap. Coordinate stub out location with privatized company and space required within the telecommunications room with the local cable TV company, Time Warner Cable (TWC), if approved by DOIM. If not approved, the CATV provider will require space inside a ground floor electrical or mechanical room to make connections. CATV is not a DOIM managed service and therefore CATV distribution pathways throughout the building shall be separate from the data or telecommunications distribution system.

(b) TWC will provide and install service cabling throughout the project site, terminating in the main electrical or mechanical room of each primary facility. Coordinate site/facility interfaces with TWC.

(c) See Appendix C: UTILITY CONNECTIONS for additional information and requirements

6.4.6.8. Telephone Service (Private Company)

The local telephone company, EMBARQ, will design and install outside plant (OSP), local (private) telephone service (e.g., subscription service to permanent party barracks). Coordinate with EMBARQ to assure duct line entry into the building.

6.4.6.9. Underground Utility – Road Crossings. Use under-ground boring systems for all underground utilities that cross active road crossings to tie into existing utilities. Do not use open trench methods to cross roads unless a last resort and specifically approved by the FB Director of Public Works. Support all piping, using spider spacers. Supporting with oak boards is not allowed.

6.4.7. Cut and Fill

6.4.7.1. Limit earth cut and fill slopes to no steeper than 3 horizontal to 1 vertical. Retaining or segmented walls are an option to limit the cut and fill. These slopes include the borrow pit.

6.4.7.2. Rough and possibly no cut/fill or grading in construction areas. Fill depression/holes from the removal building foundations and basements.

6.4.7.3. Compaction requirements shall be in accordance with ASTM D1557 (modified proctor), not ASTM D698 (standard proctor). The licensed geotechnical engineer or his authorized representative shall inspect, evaluate and approve all subgrades (pavements, floor slab, or foundation) prior to placement of overlying construction materials, as appropriate.

6.4.7.4. Ensure that the licensed project design geotechnical engineer oversees and directs proof rolling operations (for subgrade suitability); fill placement and compaction operations, including associated soil properties, compaction, and field density testing; and footing inspections on a full time basis. A Corps of Engineers validated geotechnical testing firm shall inspect, test, and document earthwork construction

6.4.8. Borrow Material: Presently there IS an available Borrow Pit(s) on Ft. Bragg. See location Plan. A permit is required to use the Fort Bragg soil borrow material pits per Section Borrow Pit permit.

6.4.9. Haul Routes and Staging Areas

6.4.9.1. See Location Plan for haul routes. Utilize only those haul routes identified on the drawing set included in this RFP.

6.4.9.2. Additional Site Requirements

(a) Identification of Employees. Provide to each employee and require each employee engaged on the work site to display identification as approved and directed by the Contracting Officer. Deliver prescribed identification to the Contracting Officer for cancellation upon release of any employee. When required, obtain and provide fingerprints of persons employed on the project. All personnel shall wear identifying markings on hard hats to clearly identify the company for whom the employee works.

(b) Employee parking. Employees shall park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site (equal to or less than ¼ mile straight line distance). Employee parking shall not interfere with existing and established parking requirements of the Installation.

(c) Temporary Facilities. Administrative Field Offices: Provide and maintain administrative field office facilities within the construction area of the designated site unless approved by the Contracting Officer and the Installation. Government office and warehouse facilities are not available to the Contractor's or subcontractors' employees.

(d) Storage Area. Trailers, equipment, or materials shall not be open to public view with the exceptions of those items which are in support of ongoing work on any given day. Do not stockpile materials outside the fence in preparation for the next day's work. Park mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment within the fenced area at the end of each work day. Locate construction trailer(s) within limits of construction. Locate the laydown yard/storage area within the limits of the construction area unless previously approved by the Contracting Officer and the Installation.

(e) Temporary Utilities. All temporary utilities (water, sewer, electrical, telecommunications, etc) will be at the Contractor's expense and subject to Fort Bragg regulations. In the case of privatization utility Contractors, the Utility cost information is at Appendix K. Contractor must negotiate and contract with the privatization utility directly without benefit of the Government

(1) Coordinate with ONUS for any temporary water and sanitary sewer service. ONUS will provide estimate for connection costs.

(2) Coordinate with Sandhills Utilities Services for any temporary electrical services. Sandhills Utilities Services will provide estimate for connection costs.

(f) Appearance of Trailers, Storage Spaces, and Other Facilities within the Laydown Yard. Storage equipment and facilities used for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers, which, in the opinion of the Contracting Officer, require exterior painting or maintenance, will not be allowed on the Installation.

(g) Maintenance of Storage Area. Keep fencing in a state of good repair and proper alignment. Should the Contractor elect to traverse, with construction equipment or other vehicles, grassed or unpaved areas, which are not established roadways, cover such areas with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways. Gravel gradation shall be at the Contractor's discretion. Mow grass located within the boundaries of the construction site for the duration of the project. Trim grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers and edge neatly.

(h) Security Provisions. Provide adequate outside security lighting at all temporary facilities. The Contractor shall be responsible for the security of its own equipment. Notify the appropriate law enforcement agency requesting periodic security checks of the temporary project field office

(i) Temporary Project Safety Fencing. As soon as practical, but not later than 15 days after the date established for commencement of work, furnish and erect temporary project safety fencing around the construction site. This fencing shall remain the property of the Contractor. The safety fencing shall be 9 gauge chain link fence, a minimum of 72 inches high, supported and tightly secured to steel posts located on a maximum of 10 foot centers, constructed at the approved location. Maintain the safety fencing during the life of the contract and upon completion and acceptance of the work remove all fencing from the work site. Prior to erection of any temporary project safety fencing, coordinate with Fort Bragg DPW Transportation Engineer, Ray Goff; 910-907-1759 to check appropriate traffic safety sight lines. Installation and locating of project safety fencing shall consider sight triangles at intersections, curves, and construction entrances.

(j) Temporary Hazard Safety Fencing. Furnish and erect safety fencing at temporary hazards and work site areas considered to be hazardous to the general public. This fencing shall remain the property of the Contractor. The safety fencing shall be high visibility orange, high density polypropylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers, constructed at the approved location. Maintain the safety fencing during the life of the hazard and remove all fencing upon completion and acceptance of the work.

(k) Cleanup. Remove construction debris, waste materials, packaging material and the like from the work site daily. Clean up any dirt or mud which is tracked onto paved or surfaced roadways. Store materials resulting from demolition activities which are salvageable within the fenced area described above or at a supplemental storage area. Neatly stack stored materials, not in trailers, whether new or salvaged.

(l) Restoration of Storage Area. Restore areas used by the Contractor for storage of equipment or material, or other use, to the original or better condition. Remove gravel used to traverse grassed areas and restore the area to original condition, including top soil and seeding, as necessary.

(m) Building and Crane Height Restrictions. Verify construction activities do not interfere with Simmons Army Airfield or Pope Air Force Base aircraft glide slopes and FAA height restrictions. Submit FAA Form 7460-1 for all cranes to be used on each building and for each building in the project to the FAA. Submit this form to the FAA a minimum of 60 days before the cranes arrive on site and the vertical construction of the buildings start. FAA Form 7460-1 is available from the Contracting Officer's Representative (COR) at the area office.

6.4.10. Clearing and Grubbing:

6.4.10.1. Clear and grub all brush and vegetation from the designated site area.

6.4.10.2. Tree Removal Plan. Develop a Tree Removal and Restoration Plan. Include a pre-existing tree survey (drawing) that clearly depicts: removed and retained trees; a table containing type tree, size range (dbh) and number of trees to be removed and a functional replacement value for each size range, as outlined by the Fort Bragg Tree Replacement Policy and Table, Appendix AA.

(a) For projects under one acre, the tree survey will document tree size (by dbh), species, and location on the pre-existing tree survey drawing. Include the table identified above.

(b) For projects >1 acre determine tree functional tree replacement value is at a ratio of 1:1 (acre for acre) to eliminate negative forest fragmentation effects.

(c) Restoration plans must attempt functional replacement value by replanting trees on-site. If not applicable, replace trees off-site or a combination of both on-site and off-site may apply.

(d) Restoration plan must consider providing species diversity, green space planning, corridor development, wildlife value, etc. Plantings must consider “natural community” (i.e., aggregate clumping and composition, and structural layers (ground, mid-story and over-story). Green space areas should be juxtaposed to preexisting natural habitat to facilitate dispersal pathways (e.g., population demographics) for animals and plants, as well as, provide for recreational value.

6.4.10.3. Ft Bragg will notify contractor if merchantable tree sales are required and arrange appropriate disposal of said timber. Allow the Government 60 calendar days to remove merchantable timber once the Contractor has flagged the trees to be removed. Merchantable timber sales do not include stump or limb removal. Remove all stumps and limbs from the project site. A valid NCDENR sediment and erosion control permit is required prior to removal of stumps from the project site.

6.4.10.4. If merchantable tree sales are not required, stockpile tree and land clearing debris at the designated recycling area at the Fort Bragg Lamont Road Landfill Facility. Tree and land clearing debris shall be free of as much dirt as possible.

6.4.10.5. Cut trees and limbs to manageable size, 4 to 6 feet length. Note: if the tree has a large diameter (example – 3 feet in diameter) cut it to lengths of 3 feet or less.

6.4.10.6. Cut trees close to the stump for safe handling at the landfill facility.

6.4.11. Landscaping:

6.4.11.1. Develop a sustainable landscape plan in accordance with the Installation sustainable communities’ goals and priority.

6.4.11.2. Plant native trees, shrubs and grasses in accordance with Fort Bragg's plant list palette (Appendix I). Theme tree emphasis favors longleaf pine to support ecosystem management policy, sustainability, endangered species conservation, and sustainable communities.

(a) Place dense native evergreen mass vegetation (such Yaupon Holly, *Ilex vomitoria*, shrubbery) along all concrete, gravel, soil, and other pathway intersections to prevent ‘short-cutting’ outside the designated pathway surface. The length of dense native evergreen mass vegetation plantings shall generally extend at least 15 feet from the intersection edge along each pathway

(b) Do not specify invasive and/or exotic species (plant materials) in the Landscape Plan.

(c) Consider site utilities when developing the landscape plan to prevent conflicts. Avoid placing trees under light fixtures or shrubs in front of equipment doors and fire hydrants.

6.4.11.3. The source water for all areas receiving irrigation shall be from rainwater harvesting, process water recovery, or other non-potable source. This does not include water wells.

6.4.12. Turf:

(a) Use centipede grass (Eremochloa ophiuroides) for low traffic grass turf areas.

(b) Use zoysia grass (Zoysia spp) for high traffic grass turf areas.

(c) The Fort Bragg preferred turf and seeding requirements are in Appendix I.

6.5. ARCHITECTURE

6.5.1. General: To the maximum extent possible within the contract cost limitation, the buildings shall conform to the look and feel of the architectural style and shall use the same colors as adjacent facilities as expressed herein. The Government will evaluate the extent to which the proposal is compatible with the architectural theme expressed in the RFP during the contract or task order competition. The first priority in order of

importance is that the design provides comparable building mass, size, height, and configuration compared to the architectural theme expressed herein. The second priority is that design is providing compatible exterior skin appearance based upon façade, architectural character (period or style), exterior detailing, matching nearby and installation material/color pallets, as described herein.

6.5.2. **Design**

6.5.2.1. Appendix F is provided "For Information Only", to establish the desired site and architectural themes for the area. Appendix F identifies the desired project look and feel based Fort Bragg's Installation Architectural Theme from existing and proposed adjacent building forms; i.e. building exterior skin, roof lines, delineation of entrances, proportions of fenestration in relation to elevations, shade and shadow effects, materials, textures, exterior color schemes, and organizational layout.

6.5.2.2. The design should address Fort Bragg's identified preferences. Implement these preferences considering the following:

(a) Achievable within the Construction Contract Cost Limitation (CCL)

(b) Meets Milestones within Maximum Performance Duration.

(c) Achieves Full Scope indentified in this Solicitation

(d) Best Life-Cycle Cost Design

(e) Meets the Specified Sustainable Design and LEED requirements.

(f) Complies with Energy Conservation Requirements Specified in this RFP.

6.5.2.3. Priority #1 Visual Compatibility: Facility Massing (Size, Height, Spacing, Architectural Theme, etc.), Exterior Aesthetic Considerations: The buildings massing, exterior functional aesthetics, and character shall create a comprehensive and harmonious blend of features that are sympathetic to the style and context of the Installation. The Installation's intent for this area is as indicated in Appendix F. Site and architectural conceptual drawings that meet this objective are shown in Appendix F.

6.5.2.4. Priority #2. Architectural Compatibility: Exterior Design Elements (Materials, Style, Construction Details, etc.) Roofs, Exterior Skin, and Windows & Door Fenestrations should promote a visually appealing compatibility with the desired character while not sacrificing the integrity and technical competency of building systems.

6.5.2.5. See Appendix F for exterior colors that apply to Architectural character at Fort Bragg. The manufacturers and materials referenced are intended to establish color only, and are not intended to limit manufacturers and material selections.

6.5.2.6. Additional architectural requirements:

(a) Install fall protection anchor points on all roofs with a slope greater than 2:12

(b) Provide a Knox 4400 Series (single lock model) recessed wall mounted key vault for Fire Department use at each building exterior. Locate adjacent to the main building entrance. Coordinate purchase of key vault through the Installation Fire Department for purchase order information and forms.

(c) In addition to building number signage on building as indicated in paragraph 5, provide freestanding exterior building signage in accordance with Appendix H.

(d) No building shall be over six stories or penetrate identified air space management zones.

(e) Exterior Wall Protection: Construct the bottom five feet of exposed exterior walls of a durable material resistant (masonry or equivalent) to moisture damage and decay as well as impact damage caused during day-to-day soldier activities expected for the function of the facility. Material shall be easily maintained and/or repaired.

(f) Prepare and present for approval an exterior building finishes scheme no later than at interim design submittal. Present original samples of this scheme to reviewers no later than at the interim design review conference for each facility included in the contract.

(g) See Appendix L for Installation LEED preferences relating to exteriors.

6.5.3. Not Used

6.5.4. INTERIOR DESIGN

6.5.4.1. Prepare and present for approval an interior building finishes scheme no later than at interim design submittal. Present original samples of this scheme to reviewers no later than at the interim design review conference for each facility included in the contract. Interior color scheme for each facility shall comply with one of the color schemes indicated for the facility type in Appendix F.

6.5.4.2. Acoustic ceiling tiles, if used, shall be two foot by two foot Omni-directional mildew/moisture resistant units. Interior paint shall be semi-gloss in wet areas and flat in all other areas.

6.5.4.3. Provide a State of North Carolina licensed elevator inspector to inspect the installation, test all new elevators, applicable to project, and certify in writing that they meet all requirements.

6.6. STRUCTURAL DESIGN

6.6.1. Treat subgrades under all facility foundations to resist subterranean and other wood destroying insects known to exist in the vicinity of the site. Treatment shall be in accordance with the environmental criteria referenced in this document.

6.6.2. Slabs on Grade. All interior slabs on grade, including storage and mechanical rooms, garages and carports, shall be underlain by a moisture vapor barrier consisting of lapped polyethylene sheeting having a minimum thickness of 6 mil and a minimum 4-inch thick capillary water barrier of open graded, washed pea gravel, or crushed stone, such as Nos. 57, 67, 78 or 89, except where a passive vapor intrusion mitigation system is required.

6.6.3. Structural Loading. Design building structures for the following types of minimum site specific live loads per most recent versions of ASCE-7 and IBC.

6.6.3.1. Roof live loads – (20 psf)

6.6.3.2. Snow load – (pg – snow ground load – 10 psf)

6.6.3.3. Wind load – 95 mph

6.6.3.4. Seismic loading - Use applicable references

6.7. THERMAL PERFORMANCE

No additional requirements.

6.8. PLUMBING

6.8.1. Reduce potable water use for building sewage conveyance by 50 percent through the use of water conserving or non-potable water fixtures. This can be accomplished through the implementation of high-efficiency and very high efficiency toilets/urinals, rainwater harvesting/use, sensing low flow and very-low flow faucets, and other appropriate technologies.

6.8.2. Waterless Urinals – Install with urinal rim 17 inches AFF. Provide concealed chair carriers. If urinals use a replaceable cartridge, provide four (4) additional cartridges for each urinal installed along with any tools necessary to remove/install cartridge, and an additional quart of biodegradable liquid for each urinal installed.

6.8.3. Wall hung water closets are not preferred. Tank type (6-liter) water closets are preferred.

6.8.4. Wall hung lavatories are preferred.

6.8.5. Floor mounted water coolers are not preferred.

6.8.6. All fixtures shall be white and exposed fittings polished chrome.

6.8.7. Piping

(a) Plastic pipe (Sch 40 PVC) shall be used for drainage and venting including under concrete slabs or inside buildings.

(b) No cellular foam core piping is allowed.

(c) CPVC and Type L (or above) copper shall be sued for water supply above slabs.

(d) Type K (copper) for water supply under slabs.

(e) Provide wall hydrants at a maximum spacing interval of 200 feet around the exterior wall of the building. Hydrant will be box type, freeze proof, with an integral vacuum breaker/backflow preventer.

(f) Elevator Sump Pump. Terminate waste discharge from elevator sump into the sanitary sewer system (where elevators are provided). Provide an oil separator to accept the waste discharge prior to emptying into the sanitary sewer system. When an “approved alarm system “ is provided and installed, an oil separator is not required and as a minimum, the alarm should provide a local audible and visual alarm, and shall provide a remote indication to the Building UMCS or similar monitoring system.

6.9. SITE ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.9.1. General. Site development work shall include selected exterior electrical demolition, construction of secondary service, communications service, Cable TV, as shown on the drawings and as described in the contract or task order.

6.9.2. Building Electrical Site Work and Coordination. Conduct electrical site coordination meetings at the start of design and when necessary thereafter. Meetings shall include government representatives (DPW and DOIM), privatized electric utility company (Sandhills Utilities Services), the local cable TV company (Time-Warner) and all other utilities involved in the site work, and the Corps of Engineers Contracting Officers Representative.

6.9.3. Exterior Electrical Distribution System

6.9.3.1. The privatized electrical system contractor, Sandhills Utilities Services (SUS), will design and construct site electrical primary distribution to and within the project site. The SUS point of contact is Jeff Brown, 910-497-7399, jeffbrown@sandhillsutility.com. See Appendix C (Utility Connection) for additional information.

6.9.3.2. Design and construct the site electrical secondary distribution. Coordinate with SUS through the Contracting Officer, regarding primary routing and transformer locations, sizes, and impedances.

6.9.3.3. Design and construct exterior circuits connected beyond the Meter for sump pumps, irrigation pumps and other electrical and mechanical equipment. Stand alone circuits should be beyond a meter and SUS end at the line side of the meter socket. .

6.9.3.4. Do not locate above ground distribution equipment within 33 feet of buildings, including transformers. Small pedestrian lights, less than 4” base diameter, are excluded from this requirement.

6.9.3.5. SUS will demolish any existing exterior SUS above ground equipment no longer required on project site. Any below ground demo will need to be negotiated due to depth and location of underground facilities.

6.9.3.6. All work done by SUS shall be under a separate contract with the Government. THIS WORK IS NOT PART OF THIS CONTRACT.

6.9.3.7. Low voltage secondary service ductlines shall be direct burial, thick wall type minimum. Concrete encase in vehicular traffic areas.

6.9.3.8. Provide rigid galvanized steel conduit, for transitions from below to above grade. Fittings for steel conduit shall be steel threaded or compression type. Screw, clamp or other type fittings are not acceptable.

6.9.3.9. Provide secondary service cables to the secondary compartment of the transformer. The cables shall be clearly marked [color coded or taped] and sufficient of length to facilitate their connection to the secondary lugs of the transformer. SUS will install the cable terminators and connect to the transformer.

6.9.3.10. See Appendix C: UTILITY CONNECTIONS for additional information and requirements.

6.9.4. Exterior Lighting

6.9.4.1. Lighting within the Old Post Historic District must meet the requirements of the Old Post Historic District Design Guidelines

6.9.4.2. Design the site lighting for installation by SUS (under separate contract). Supply the site design to SUS for them to plan installation of supporting conduits, exterior lighting bases, and other equipment.

6.9.4.3. See Appendix C: UTILITY CONNECTIONS for additional information and requirements.

6.9.5. Site Telecommunications

6.9.5.1. Connect to the OSP, extending a new duct line, manhole and cable system to the building main communications room. Each ductline between manholes shall be minimum 4-way 4-inch, Schedule 40 PVC conduits. Coordinate design, construction and connection point location with the installation DOIM. Typical drawings required for design can be found in I3A figures C2 thru C6.

6.9.5.2. Do not use the last remaining duct in any pathway system/ductbank. Include one spare duct for maintenance purposes in any segment of pathway or duct bank design.

6.9.5.3. Coordinate planning and design of outside plant communications systems on Fort Bragg with the Fort Bragg DOIM. DOIM will provide the following information and assistance for the proposed communication design

(a) Location of nearest fiber optic service and available strand count

(b) Location of the nearest copper service and available cable count

(c) Location of nearest manhole, hand hole, or installation cable support infrastructure that can provide a duct tie-in point.

6.9.5.4. When no existing outside plant communications infrastructure is available near the proposed facility, the following requirements apply:

(a) Provide outside plant communications infrastructure from the nearest Area Distribution Node (ADN) or Remote Switch Unit (RSU).

6.9.5.5. Provide a 3-way 4-inch duct line to the building main communications room. Provide one strand optical fiber (SM) in a second duct. The remaining duct(s) shall be spare. Terminate cables on protected entrance terminal blocks in each building's main communications room.

6.9.5.6. In addition to Para 2.5.6 in the I3A, cover no less than two walls with fire rated plywood.

6.9.5.7. In reference to I3A Para 3.8.8, use Fabric Mesh Innerduct for duct and cable installations. Install 3 each, 3 inch, 3 cell fabric mesh with each fiber cable installation and in one of four newly installed ducts.

6.9.5.8. Per I3A Fig C-5, Manholes shall be 38YJ4 on Ft Bragg and shall include a moveable ladder.

6.9.5.9. Size 30" maintenance hole lids are required unless otherwise specified or approved. Maintenance hole lids larger than the standard 30" size are extremely cumbersome when providing maintenance on cable infrastructure. Ref. I3A, paragraph 3.8.1.3 (a).

6.9.5.10. When considering System Furniture for admin spaces, take the different classified systems into consideration. Power, SIPR, and NIPR could potentially be housed within the systems furniture channels. Stringent separation restrictions must be adhered to for this practice. A systems furniture module, figure 13-0B, must have a

separate channel for each cable category. They must enter the piece typically through a ceiling mounted power pole or underneath via a raised floor system and then channeled through the furniture. Power is typically directed to the floor channel and is then terminated. NIPR enters through a separate power pole and is channeled to the mid "Beltline" channel and SIPR, if installed, enters in through its own power pole system and is channeled through the top channel. This configuration will provide all separation necessary to comply with Tempest requirements.

Because of the nature of this furniture, infrastructure space is a valuable commodity that is somewhat overlooked. Extended Depth faceplates, figure 13-0A, when installed, ensure the proper bend radius is provided to make sure specifications are met for connectivity.

6.9.5.11. In regards to the I3A Technical Guide, paragraph 2.3.3.1, regarding copper outlets and connectors, wire all outlet/connectors per T568A.

6.9.5.12. Use the following Cable Jacket and RJ-45 Color Code:

Green **-** The standard wire and jack color for UNCLASSIFIED.
Red **-** The standard wire and jack color for CLASSIFIED (SECRET)
Yellow **-** The standard wire and jack color for CLASSIFIED (TOP SECRET)

6.9.5.13. Label in accordance with the Fort Bragg standard labeling scheme shown below:

6.9.5.14. Outside Plant (OSP) Voice and Fiber Optic Service Cables: Provide OSP Voice and Fiber building service cables as follows:

(a) Extend all service cables through the new building service duct line.

(b) Terminate all OSP Voice Only service entrance cables on protected terminal blocks and all Fiber Optic cables on service entrance termination hardware located in the main communications room.

(c) Provide service entrance termination hardware for fiber optics service cables. Terminate the facility service data fiber optic cables on a patch panel, on 19-inch floor mounted standard racks. Terminate cables with ‘SC’ connectors at facility service entrance. Terminate the facility’s data communication at an RJ45 patch panel in this rack. Provide patch cables (fiber and copper) and connect as required by DOIM to meet I3A requirements.

(d) Demolish and remove any existing OSP cabling and communications duct bank no longer required on the project site.

6.9.6. Lightning Protection. Lightning risk assessment calculations shall be in accordance with NFPA 780, Appendix L, utilizing the following variables:

6.9.6.1. Fort Bragg Lightning Flash Density Index “Ng” Value = 4

6.9.6.2. Determination of Environmental Coefficient Index “C1” = 1 (Isolated structure, no other structures located within a distance of 3H)

6.9.6.3. Determination of Structure Contents Coefficient Index “C3” Minimum value = 1 (Use larger if applicable)

6.9.6.4. Determination of Structural Occupancy Coefficient “C4” = 1 (Normally occupied)

6.9.6.5. Determination of Lightning Consequences Coefficient Index “C5” = 5 (Continuity of facility services required, no environmental impact

6.10. FACILITY ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.10.1. Coordinate all work with Fort Bragg DOIM.

6.10.2. Voice/Data Communications

6.10.2.1. LAN Hubs shall be Government Furnished/Government Installed.

6.10.2.2. Provide a quadplex power outlet and voice/data communications outlet every eight (8) feet of open wall space to support modular training in one classroom.

6.10.3. Elevators

Install conduit, wiring, and a telephone device as the emergency phone in the elevator cab. Government is responsible for making telephone operable including coordinating with the Ft Bragg DOIM for service and connection to the Ft Bragg DES 911 Emergency Call Center.

6.11. HEATING, VENTILATING, AND AIR CONDITIONING

6.11.1. Integrate the control system to the installation's existing UMCS. The existing UMCS is an LCS-8520 that utilizes the LonWorks® Technology to integrate LNS databases into a single front-end. The UMCS is based on UFGS 25-10-10.

6.11.1.1. Fort Bragg's System Integration (SI) Contractor will integrate the building's BAS in accordance with UFGS 25-10-10 and the Fort Bragg UMCS Integration SOW. Coordinate through Fort Bragg's UMCS System Manager.

6.11.1.2. General Requirements

(a) Do not modify the chiller microprocessor supplied with the equipment. Control and safety functions should be the chiller manufacture's responsibility.

(b) Do not modify the boiler microprocessor supplied with the equipment. Control and safety functions should be the chiller manufacture's responsibility. If heating water systems are used, then design such systems to maintain the boiler manufacture's minimum temperature when in operation but vary the heating water supply temperature as required to meet the buildings requirements.

(c) Provide all DDC software, equipment and devices from a single common manufacturer whenever possible.

6.11.2. Mechanical Equipment Maintenance and Accessibility Requirements

6.11.2.1. Selected mechanical systems must be compatible with the existing systems and composed of standard commercially available items with readily available service and repair parts.

6.11.2.2. Any mechanical rooms above the first floor shall have an external access (door, removable louvers, etc of ample size such that the largest piece of installed equipment could be removed through the opening.

6.11.2.3. Install all piping, except individual fixture pipes, to permit access without requiring removal of permanent walls, floor, or ceilings.

6.11.2.4. Arrange all equipment, piping, etc in mechanical rooms so that each piece of equipment can be removed without having to remove any other piece of equipment. Consider things such as coil pull areas in the mechanical room layouts.

6.11.2.5. Chillers: Chillers shall include as a minimum the following features

(a) Scroll or screw type compressors with 5-year parts warranty

(b) Microprocessor controllers with self-diagnostic capabilities

(c) Low ambient controls to zero (0) degrees F.

6.11.2.6. Fuels

Natural gas is the preferred fuel source for heating.

6.11.2.7. Pumps

(a) Hot Water and Chilled Water pumps shall operate at 1,750 rpm or less

(b) Mechanical Rooms: Heat to 40 F for freeze protection where piping may be subject to freezing.

6.11.3. Site Mechanical Equipment. Design all exterior mechanical equipment to be compatible with existing mechanical equipment within the surrounding area. This includes color and screening.

6.12. ENERGY CONSERVATION

6.12.1. Inclusion of Renewable Energy Features. The following renewable energy features have been determined lifecycle cost effective, are included in the project budget and shall be provided:

Not Used

6.13. FIRE PROTECTION

6.13.1. Provide fire extinguisher cabinets and brackets when fire extinguishers are required by UFC 3-600-01 and NFPA 101. Place cabinets and brackets shall in accordance with NFPA 10.

6.13.2. Provide semi-recessed cabinets in finished areas and brackets in non-finished areas (such as utility rooms, storage rooms, shops and vehicle bays).

6.13.3. Fire Extinguishers are Government Furnished/Government Installed for this project. Advise Government of required size and type Fire Extinguisher for each type building and service location

6.13.4. Fire Alarm System. Fire alarm panels must be addressable and must be able to communicate alarms to the Honeywell Enterprise Building Integrator System (EBI) located at the Fort Bragg 911 Center.

6.13.5. Mass Notification System

6.13.5.1. Provide a combined system that performs both as an individual building MNS and as the building Fire Alarm voice evacuation system.

6.13.5.2. In addition to the applicable references and design criteria in paragraphs 4 and 5, see Appendix AF for Fort Bragg Implementation Directions to Building Mass Notifications Specifications and Installation Guidelines

6.14. SUSTAINABLE DESIGN

6.14.1. LEED Rating Tool Version. This project shall be executed using LEED-NC Version 2.2.

6.14.2. The minimum requirement for this project is to achieve LEED Gold level. Each non-exempt facility (building plus sitework) must achieve this level. In addition to any facilities indicated as exempt in paragraph 3, the following facilities are exempt from the minimum LEED achievement requirement: None.

6.14.3. Credit Validation: LEED registration, compiling of documentation at LEED OnLine and use of the LEED Letter Templates is required. Registration and payment of registration fees will be by the Contractor. Administration/team management of the online project will be by the Contractor. Validation of credits will be accomplished by the Government. LEED certification of the project by the Contractor is not required. The Government may choose to seek LEED certification of the project, in which case the Government will pay certification fees and coordinate with the GBCI and the Contractor will furnish audit data as requested at no additional cost.

6.14.4. Commissioning: See Appendix M for Owner's Project Requirements document(s).

6.14.5. LEED Credits Coordination. The following information is provided relative to Sustainable Sites and other credits.

**SS Credit 1 Site Selection:**

Project site IS NOT considered prime farmland.

Project site is five feet or more above 100-year flood elevation.

Project site contains no habitat for threatened or endangered species.

No portion of project site lies within 100 feet of any water, wetlands or areas of special concern.

Project site WAS NOT previously used as public parkland.

**SS Credit 2 Development Density & Community Connectivity.**

Project site DOES NOT meets the criteria for this credit.

**SS Credit 3 Brownfield Redevelopment.**

Project site DOES NOT meets the criteria for this credit.

**SS Credit 4.1 Public Transportation Access.**

Project site DOES NOT meets the criteria for this credit.

**EA Credit 6 Green Power.**

35% of the project's electricity WILL NOT will be provided through an Installation renewable energy contract.

**MR Credit 2 Construction Waste Management.**

The Installation has an on-post recycling facility. Contact Pat Rafanowicz: 270-798-6610/cell at 615-642-2260 for information about materials accepted.

6.14.6. LEED Credit Preferences, Guidance and Resources. See Appendix L LEED Project Credit Guidance for supplemental information relating to individual credits.

6.14.7. Not Used

6.14.8. Additional Information

No Additional Requirements

6.15. ENVIRONMENTAL

6.15.1. Spill Response Procedure and Plan

6.15.1.1. Notify the Fire Department immediately in the event of a hazardous spill. The first person on-scene that identifies the hazard must notify the Fire Department – this may or may not be the designated POC.

6.15.1.2. After notifying the Fire Department, call the DPW Environmental Compliance Branch and the Contracting Officer.

6.15.1.3. The Fort Bragg Fire Department and DPW Environmental Compliance Branch are responsible for any off-installation notification.

6.15.1.4. Provide a Spill Response Plan for review. Include a list of reporting channels, telephone numbers, a listing of the hazardous materials stored on site, copies of Material Safety Data Sheets for the hazardous materials, and a site diagram outlining where the storage sites are located. Train all supervisors on site in the execution of the Spill Plan. Document all training.

6.15.2. Wetlands and Stream Crossing

6.15.2.1. Do not enter, disturb, or allow any discharge (soil, sediment, and/or pollutants) into any wetlands.

6.15.2.2. Comply with all local, state, and federal laws and regulations pertaining to the protection of wetlands under the CWA Section 404/401 regulatory program and North Carolina DENR Division of Water Quality.

6.15.2.3. If wetland impacts are unavoidable, abide by CWA Section 404 regulatory program and apply for applicable wetland permits. All wetland permit costs, delineations, and compensatory mitigation costs will be the contractor's responsibility.

6.15.2.4. Comply with avoidance, minimization strategies prior to approval of any wetland impact in accordance with CWA Section 404 (CWA 33 USC 1344).

6.15.2.5. All stream crossings will avoid impacts to navigable waters and wetlands. Do not enter, disturb, destroy, or allow discharge (fill) of soil, sediment, or contaminants into the stream.

6.15.2.6. Comply with all local, State, and Federal laws and regulations pertaining to the protection of surface waters to include but not limited to lakes, ponds, streams, creeks, rivers, and bayous.

6.15.3. Safety and Health Requirements for Construction Activities

6.15.3.1. Work performed under this contract shall comply with EM 385-1-1, specifically 28.A, applicable Federal, State, and local safety and occupational health laws and regulations. This includes, but is not limited to, Occupational Safety and Health Administration (OSHA) standards, CFR 29 Part 1910, especially Section .120, "Hazardous Waste Site Operations and Emergency Response" and CFR 29 Part 1926, especially Section .65, "Hazardous Waste Site Operations and Emergency Response". Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this contract, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

6.15.3.2. Ensure that all subsurface disturbing activities are monitored by a competent person using a direct reading instrument capable of detecting any VOCs that may be released.

6.15.3.3. Develop a Site Safety and Health Plan (SSHP) to cover the safety and health aspects of the subsurface contamination detailed in Section 6.12.1, which may be encountered during the execution of this project. In some areas the Contractor may encounter contaminated groundwater which may need to be dewatered to execute construction activities. Although the contamination is in the soil, VOC vapors may also be released during excavation of footers, utility trenches, and other subsurface disturbing activities.

6.15.3.4. The Savannah District Safety and Occupational Health Office are required to review and accept the Site Safety and Health Plan. In addition to the requirements detailed in 385-1-1 28.A, submit the following as part of the SSHP: Certifications of Hazard Waste Site Training and Experience, Medical Clearances, and Licenses. Do not submit materials with full social security numbers or personal medical data. Black out this information.

6.15.4. Dewatering

6.15.4.1. If dewatering of excavations is required, the water being removed shall be considered as contaminated with SVOCs and/or VOCs and pumped it through piping to the stormwater/detention/retention basin that the Contractor is required to build under 6.5.6 stormwater Management and Quality.

6.15.4.2. Fort Bragg Directorate of Public Works Environmental Compliance Branch (DPW-ECB) and Water Management Branch (WMB) must approve the specific structural stormwater management measures.

6.15.4.3. All stormwater management requirements apply to dewatering activities, materials, and water. All OSHA health and safety requirements apply to dewatering activities.

6.15.5. Vapor Mitigation Design Requirements

6.15.5.1. Design and install a passive vapor intrusion mitigation system under all buildings that have soil and/or groundwater contamination. The system shall follow the guidelines presented in U.S. Environmental Protection Agency Radon Mitigation Standards (EPA 402-R-93-078) and Radon Prevention in the Design and Construction of Schools and Other Large Buildings (EPA/625/R-92/016).

6.15.5.2. Although this guidance addresses radon mitigation, the same principles can be applied to volatile organic compound (VOCs) and semi-volatile organic (SVOCs) vapors.

(a) Ensure that all materials used shall be compatible with VOCs and SVOCs. This includes but is not limited to the liner, caulking, sealants, piping and all other materials.

(b) Ensure that the system installed meets or exceeds the expected life-use of the buildings it is installed in. The design shall consider protection of roof-top venting from the elements such as heavy rains, winds, etc., and locate a safe distance from all fresh air intakes.

(c) Leak test or construct the system in such a manner that leaks cannot occur within the building. Submit documentation of system integrity to the Contracting Officer's Representative.

6.15.6. Existing Monitoring Wells

6.15.6.1. Should any wells be damaged, or found to be placed in an area where they will become damaged, contact the USACE project manager for directions on how to close and where to re-install the wells. Close and reinstall GW monitoring wells at no additional cost to the Government. For further information, reference Fort Bragg's Standing Operating Procedure (SOP) #6003.

6.15.6.2. Protect all groundwater monitoring wells at construction sites with known contaminated areas.

6.15.6.3. Raise the tops of or lower existing monitoring wells located in pavements and sidewalks to meet new finished grades and replace the tops with vehicle rated tops.

6.15.6.4. Relocate ground-water monitoring wells located within building footprints only after written approval from the State and the Contracting Officer.

6.15.6.5. Repair or replace any monitoring wells damaged as a result of construction at the Contractor's expense.

6.15.7. Contractor Generated Spills

(a) Manage, store, dispose and dispense petroleum products, hazardous materials, and hazardous wastes according to all Federal, state, and local regulations (including Fort Bragg Regulations 200-1, 200-2, and 200-3).

(b) Transport generated hazardous waste off Government property to a permitted transportation, storage, and disposal facility (TSDF).

(c) Coordinate with the DPW Environmental Compliance Branch Hazardous Waste Program Manager to obtain the EPA ID number for the standard manifest. Hazardous waste cannot leave the installation without the designated representative from the DPW Environmental Office signing and obtaining a copy of the manifest.

6.15.8. Historic Properties. Stop work immediately and notify the Contracting Officer and the Fort Bragg Cultural Resources Program Manager if unidentified/unanticipated cultural resources are discovered/found during excavation or other construction activities.

6.16. PERMITS

6.16.1. The Government has not obtained any permits/licenses related to this project.

6.16.2. The Contractor shall be responsible for obtaining ALL applicable permits as part of the design process and shall secure ALL permits necessary for construction of the project. Determine fee basis and pay all filing fees at no additional cost to the Government.

6.16.3. Comply with provisions of the Installation permits, compliance agreements, and plans with regulating authorities/agencies.

6.16.4. Submit copies of permits to the Contracting Officer and Ft Bragg Environmental Division in sufficient time to allow for review and revision with ultimate submittal 10 days prior for the associated permitted activity. Provide copies of permit amendments to the Contracting Officer representative and Ft Bragg Environmental Division.

6.16.5. Water and Sanitary Sewer Permit. ONUS, as the Fort Bragg water and sewer privatization contractor, is responsible for all aspects of obtaining and closing the potable water and sanitary sewer permits for this project.

6.16.6. Borrow Pit Permit. A permit is required to use the Fort Bragg soil borrow material pits. Process soil borrow pit permits with the Environmental Branch of the Directorate of Public Works Environmental Sustainment Division through the Contracting Officer Representative.

(a) Permits are issued for the life of the contract only.

(b) Borrow material may only be used on the project for which the permit(s) are issued.

(c) Keep a copy of the signed permit with the borrow hauling vehicle throughout the borrow operation period.

(d) Copies of the borrow permit can be found in Appendix AD.

6.16.7. Construction and Demolition (C&D) Waste

6.16.7.1. Obtain and pay for all permits associated with demolition.

6.16.7.2. Landfill tipping fees for construction debris WILL NOT be charged to the Contractor at time of award contract. The landfill tipping fees are identified in Appendix AC.

6.16.7.3. Construction and Demolition (C&D) permit is required to use the Fort Bragg LaMont Road Construction and Demolition Landfill Facility (Permit No 26-08). Follow requirements identified at http://www.bragg.army.mil/envbr/solidwaste.aspx regarding disposal of inert construction and demolition waste in the Ft Bragg C& D landfill sites.

(a) Process the Construction and Demolition (C&D) permit with the Environmental Branch of the Directorate of Public Works Environmental Sustainment Division through the Contracting Officer Representative.

(b) Permits are issued for the life of the contract only.

(c) Only materials produced on the project for which the permit(s) are issued may be disposed of in the land clearing and inert debris/demolition landfills.

(d) Keep a copy of the signed permit with the hauling vehicle(s) throughout the borrow operation period.

(e) Copies of the disposal permit can be found in Appendix AC.

(f) Obtain and pay for all permits associated with demolition.

(g) The contractor is encouraged to recycle commodities through the Ft. Bragg QRP.

6.16.8. Fort Bragg Excavation (Dig) Permits

6.16.8.1. Present an Excavation Permit, FB Form 1605, to the Resident Engineer for approval by the Facilities Engineer prior to any excavation that penetrates the ground by 6 or more inches. A sample of this form is included at Appendix AH or can be obtained from the Resident Office upon request.

6.16.8.2. Spot all utility lines using an independent spotting service prior to beginning excavation. Keep a signed copy of the digging permit on site at all times. Fort Bragg may conduct back check spotting excavation during the excavation portion of this contract.

6.16.9. Title V Air Permits

6.16.9.1. Coordinate with Fort Bragg's Environmental Branch, point-of-contact (POC) Gary Cullen (910-907-3645), Air Program Manager, in obtaining all required and applicable permits as part of the design process. Secure all permits necessary for construction of this project to include the purchase of any add-on emission control devices (if applicable) associated with this project, and at no additional cost to the Government.

6.16.9.2. Fort Bragg operates under a Title V Air Permit for air quality requirements. Perform a regulatory review of all air sources in the project and submit for approval to the Environmental Compliance Branch (ECB).

(a) New sources must be reviewed for Prevention of Significant Deterioration (PSD) applicability. Each Congressional Appropriation is defined as one project. Additionally, new sources must be reviewed for NESHAP (National Emissions Standards for Hazardous Air Pollutants) applicability.

(b) Develop required air permit application(s) and/or coordinate with ECB on any on-going permit applications.

(c) Pay all Air Permitting fees to NCDENR (North Carolina Department of Environment and Natural Resources). Obtain all required permits prior to construction of any new sources.

(d) Comply with all State regulatory requirements for boilers fired by either natural gas or distillate oil. Ensure that the boiler(s) is included in the Installations Title V Air Permit.

(e) New boilers with input greater than 10 million BTU/hr shall meet 40 CFR Part 60, New Source Performance Standards.

(f) All new boilers shall include low NOx burners.

(g) Obtain an air permit for each type of material (i.e. concrete, rock crushing, and asphalt batch plants) that will produce dust and other harmful particulates within the boundaries of the installation.

(h) The Contractor may not unilaterally change the Installation's Title V Air Permit. Coordinate any and all changes/modifications through the designated Environmental Branch staff.

6.16.9.3. Air Permit Submittal Requirements (Boilers and Domestic Water Heaters). Pursuant to satisfying requirements under the Clean Air Act, at or before the 60 percent design stage, submit the following to the installation's environmental office, point-of-contact (POC) Gary Cullen (910-907-3645), Air Program Manager:

(a) A listing of boilers and domestic hot water heaters that will be fired by natural gas, propane, and/or fuel oil

(b) The fuel or fuels (primary and backup, if applicable) that will be utilized for each piece of equipment

(c) The quantity of each particular size

(d) The respective input firing rate.

(e) Provide a point of contact and an alternate point of contact, should the environmental office require additional information from the designer of record during the permitting process.

(f) Send two copies of the document to the Savannah District: one to the Project Manager for placement in Central Files, and another to the Mechanical Section.

6.16.9.4. Document Changes

(a) Do not send the Air Permit prematurely, since any increase in boiler sizing subsequent to submission of the document will require revision to the permitting process,

(b) If there is a change in equipment sizing during refinement of the design process, submit an updated copy of said document.

6.16.9.5. Incorporate the equipment accessories required for compliance with the governing environmental laws into the design. This includes, but is not limited to, determining the need for individual metering and the level of emissions monitoring required.

6.16.9.6. The interim design narrative shall specifically address those features that will be incorporated into the boiler system design to assure compliance with the applicable environmental laws of the State.

6.16.9.7. Normally, for fast track design-build contracts, the Air Permit construction permit will not have been obtained prior to award of the design-build contract.

(a) No construction associated with the building(s) housing the boiler(s) or other source(s) of contaminant can be done prior to obtaining the required permit.

(b) The following things can be done prior to possession of the permit: clearing and grading, access roads, driveways, parking lots, underground utilities up to the 5-foot line of the buildings, and ancillary structures (structures not associated with housing the sources of contaminants).

6.16.9.8. If the use of temporary rental or leased equipment is required during demolition, renovation, or construction of the project, the emissions from those pieces of equipment need to be qualitatively and quantitatively reviewed for air quality permitting requirements.

(a) Assess those needs and any permitting required will be the responsibility of the contractor.

(b) Contractor is responsible for any permitting fees or resulting permit compliance associated with the temporary equipment. Examples include the use of temporary electrical generators, boilers, painting operations, abrasive blasting operations etc. to support the project. Per 15A NCAC 2D .0300

6.16.10. State of North Carolina Required Applications and Permits. Prepare, sign, and submit the following list of commonly required State of North Carolina applications and permits for Fort Bragg projects

6.16.10.1. North Carolina State Demolition Permits

6.16.10.2. North Carolina State Asbestos Removal Permit

The Contractor obtaining all permits (local, state and federal) required for design and construction of all site features and utilities. The Contractor shall be responsible for providing information to obtain all necessary permits. Information shall be provided as described below.

6.16.1. Air Permits

Air permit information shall be provided to Ft. Campbell Environmental Division. Two types of permits are required: (1) A construction permit; and (2) An operating permit. A construction permit is based on the design and shall be obtained prior to construction. An operating permit shall be obtained when the equipment is installed. Information for both types of permits shall be provided to Ft. Campbell using the Checklist for Non-Process Source and the Vent Stack Checklist. Both checklists are available from the Ft. Campbell Environmental Division. Each of these checklists shall be completed for each piece of fuel-burning equipment. The lead time for these permits is approximately 30 days. Information should be submitted as soon as possible. Point of contact for these items is Patty Lockard, Ft. Campbell Environmental Division, and (270) 798-9603.

6.16.1.1. In addition, Christian and Montgomery Counties have been designated as nonattainment with the National Ambient Air Quality Standards (NAAQS) for ozone. The nonattainment designation results in Fort Campbell being subject to the general conformity rule (40 CFR 93, Subpart B, Determining Conformity of General Federal Actions to State or Federal Implementation Plans); the Tennessee Division for Air Quality rule, 401 KAR 50:065, (Conformity of general federal actions); and the Tennessee Division for Air Quality Control rule, 1200-3-34 (Conformity). The general conformity rule (GCR) is a rule required by the Clean Air Act as amended in 1990.

6.16.1.2. This rule, in part, requires that any proposed construction activity which will result in the emission of surface ozone precursors (volatile organic compounds and nitrogen oxides) be reviewed to ensure the action does not impede Tennessee air pollution control efforts to gain attainment of the NAAQS for ozone. Non attainment designations for particulate matter (PM) are based on 3-year averages of either each years' annual average concentration (annual average) or on a 24 hour average basis (rolling 24 hour avg.). PM2.5: Exceedance of either standard can result in an area being classified as non-attainment for PM2.5. If that should occur, PM2.5 will be considered and added to the GCR process as stated above.

6.16.1.3. Data will be required to enable the Air Quality Program of the Fort Campbell Environmental Division to calculate the estimated emissions of ozone precursors resulting from construction equipment (mobile and stationary) burning fossil fuels and other Contractor vehicles (Contractor or private owned) operated on Fort Campbell as a result of the construction contract. To obtain this data representatives of the Fort Campbell Air Quality Program will need to contact either a Contractor representative and/or the Resident Office project manager, as designated by the Fort Campbell Resident Office. Some examples of construction equipment and activities which need to be identified as to their usage are listed below and on the next page.

6.16.1.4. The primary source of the ozone precursors at Fort Campbell during construction activities is the burning of fossil fuels by mobile non-road construction equipment and other vehicles, including privately owned vehicles operated by construction Contractor personnel and Government supervising personnel (this applies only to that portion of usage directly applicable to the construction activity, which includes the commute to the construction site). In addition stationary and/or portable units such as fossil fuel fired boilers,

space heaters, and electric generators must be considered. Additional sources of concern that may be part of major construction activities include, but are not limited to, coating operations (spray booths), solvent cleaning operations, volatile organic fluids (fuels, etc.) dispensing and storage operations, and site remediation activities.

6.16.1.5. In addition to the data concerning ozone precursor emissions during the construction phase, data are also required to estimate what the emissions will be after the completion of the construction project. This includes evaluations to determine emission increases of ozone precursors resulting from any new permanent stationary sources; any potential increase in vehicle miles traveled by fossil fueled tactical, other federal Government owned, and private owned vehicles; and any increase in demands on current utility services (boiler plants, water plants, etc.). This data will be compiled from reviews of construction plans and drawings and by interviews of points of contact other than the Contractor or the Fort Campbell Resident Office.

6.16.1.6. The analysis must be completed prior to commencement of any of the construction project activities. This applies to any construction activities commenced on or after 15 June 2005.

CONSTRUCTION EQUIPMENT LISTING

The list is not purported to be a complete list. It is based on some of the operations conducted during past major construction activities at Fort Campbell.

Bulldozers

Graders

Excavators

Backhoes

Dump Trucks

Fuel/Service Trucks

Tractors

Pug Mills (on site Fort Campbell)

Concrete Batch Plant fossil fuel usage (on site Fort Campbell)

Scrapers

Ready-Mix Trucks

Screed, Concrete, (if fossil fuel powered)

Portable paint sprayers and any associated fossil fuel powered air compressors

Fossil fuel fired powered air compressors used for activities other than powering paint

applicators

Fossil fuel powered electric generators,

Lay Down Machines used in paving activities

Rollers

Compactors

Water Trucks

Pavement Stripping Machines

Traffic road striping (vehicle and product applied)

Loaders

Compactors

Curb and Gutter Pavers

6.16.2. Water Permits

Any changes to the water distribution system require an Approval from the State Government. The utility owner, CH2MHill, is responsible for coordinating the application for permit for work involving the water distribution system. The contractor shall provide information as necessary during the design of the project to CH2MHill for preparation of the permit application. Point of Contact for CH2MHill at Ft. Campbell is Chris Semler, (931)431-2015. Alternate contact for CH2MHILL is Robert Neath (314) 421-0313.

6.16.3. Sanitary Sewer Permits

Any changes to the sanitary sewer system require State approval. The utility owner, CH2M Hill, is responsible for coordinating the application for permit for work involving the sanitary sewer system. The contractor shall provide information as necessary during the design of the project to CH2MHill for preparation of the permit application. Point of Contact for CH2MHill at Ft. Campbell is Chris Semler, (931)431-2015. Alternate contact for CH2MHILL is Robert Neath (314) 421-0313.

6.16.4. Erosion and Sediment Control Permit.

The contractor shall coordinate with the Ft Campbell Environmental Division to obtain latest guidance on the Erosion and Sediment Control permits. The POC is Mr. Don Calbert at phone number 270-798-9639. No ground disturbing activities shall be made without first securing a National Pollution Discharge Elimination System (NPDES) permit. The Contractor shall be responsible for obtaining the NPDES permit from the State of Tennessee, Department of Water Management. Thirty days (30) prior to submitting the permit to the State of Tennessee, a copy of the permit submittal shall be submitted to the Contracting Officer. The project contract drawings shall include Pollution Prevention Plans to be undertaken by the Contractor and in accordance with the NPDES permit. Additional information and guidelines can be found in the Fort Campbell Design Guide, Chapter 3, Division 01000, Section 01360, Environmental Protection.

6.16.5. Ft. Campbell Permits.

No electric equipment shall be installed within or on any Fort Campbell building, structure, or premises, nor shall any alteration or addition be made in any such existing equipment without first securing an Electrical Permit from the Fort Campbell Electrical Inspector in accordance with CAM Regulation 420-4 (Quality Assurance “Electrical” Inspection Standards). An Electrical Contractor Registration Form must be completed. This form will be attached to the back of the copy of the CAM Regulation. The Contractor’s license will then need to be validated against the Fort Campbell Review Board list of State Electrical Licenses valid on Fort Campbell KY before a permit can be obtained. Copies of CAM Regulation 420-4 and permits shall be obtained at DPW, Utilities Maintenance Building 868, Bastogne & 16th Street, Fort Campbell, Kentucky.

6.16.6. Excavation Permits.

The Contractor shall obtain approved excavation permits prior to digging. Request for excavation permits shall be in accordance with installation policies. The Contractor shall coordinate all excavation activities with the Project Engineer. The Contractor shall coordinate with the appropriate utility service to mark underground utilities (gas/water/sewer/electric/steam/chill water/storm/fuel lines/drain, and telephone and cable) in the vicinity of the excavation no earlier than three days prior to work being started.

6.16.10.3. North Carolina Erosion and Sedimentation Control Permit. Create and implement an Erosion and Sedimentation Control (ESC) Plan that conforms to the Fort Bragg EPA Construction General Permit, and local erosion and sedimentation control standards/ codes in effect at the time of award.

6.16.10.4. North Carolina General Permit to Discharge Stormwater under the National Pollutant Discharge Elimination System

6.16.10.5. North Carolina Stormwater Management Permit Application Form

6.16.10.6. North Carolina Notice of Intent (NOI) and Notice of Termination (NOT) Documents. Prepare, sign, and submit the NOI and NOT documents to the State of North Carolina.

6.16.10.7. Obtain any North Carolina additional applications and permits not listed as required for the construction of this project.

6.17. DEMOLITION

6.17.1. Demolish building(s)and other demolition work within the construction footprint to include demolition, asbestos containing materials (ACM) abatement and hazardous building materials (HBM) removal, removal of foundations, capping underground utilities (water, sewer, natural gas, heating and chilled water, etc.) and other site improvements. Comply with Federal, State and local statutes, ordinances agreements and as described in this RFP.

(a) The Contractor IS NOT authorized to perform a full remediation of the site under this Contract.

6.17.2. Copies of ACM and HBM surveys are included in the RFP in Appendix AI.

6.17.3. The construction and waste management plan shall identify the materials to be diverted from disposal and sorted onsite.

6.17.4. In the case of buildings that are in the direct footprint of the project, the Government will move demolition building occupants and furnishings prior to the Contract NTP date except where movement is not in the best interests of the Government. Such cases will be identified in the Contract.

6.17.5. Notify Directorate of Public Works (DPW) through service orders (Telephone 910-396-0321) to disconnect all utilities to demolition buildings to include electricity, natural gas, propane gas, and fuel oil.

6.17.6. Either self perform or contact ONUS regarding disconnection and capping of potable water, fire water, and sanitary sewer lines. ONUS will determine the Contractors level of demolition of all sanitary sewer and water mains.

6.17.7. If the Contractor plans to use a demolition building for administrative or storage:

6.17.7.1. Notify the Government through the Corps of Engineers in writing of their intent during contract negotiations.

6.17.7.2. DPW will disconnect utility services, but not remove them.

6.17.7.3. The Contractor is responsible for installing appropriate electrical, water, and gas meters for the building. If connecting to privatized utility (water, gas, or sewer), contractor must coordinated with privatized utility company for installation of services. All costs associated with the connection shall be paid for by the contractor

6.17.7.4. DPW will reconnect the metered services upon notification by Corps of Engineers.

6.17.7.5. The government bears no responsibility for the condition of the demolition buildings between the Request for Proposal (RFP) and the contract or task order Notice to Proceed (NTP) date.

6.17.7.6. The Government maintains the right to salvage all materials from the building until the NTP date.

6.17.8. Contact ONUS regarding disconnection and capping of potable water, fire water, and sanitary sewer lines. ONUS will determine the Contractors level of demolition of all sanitary sewer and water mains.

6.17.9. Assume that all demolition buildings will have no salvage value.

6.17.10. Do not assume that any building within the project footprint can be an administrative or storage building. If a building is missing structural components (windows, doors, etc), equipment (commodes, sinks, HVAC units, etc) or utilities (electricity, water, natural gas, fuel oil), it is the Contractor's responsibility to restore these components to make the building habitable for their use.

6.17.11. DPW will notify DOIM to disconnect government telephone and CATV service to buildings.

6.17.12. DPW will notify EMBARQ / Time Warner to disconnect privately owned telephone and CATV service to buildings.

6.17.13. Fort Bragg DPW charges three hundred dollars ($300.00) per building to disconnect utilities.

6.17.14. Fill depressions caused by the removal of demolished materials such as building foundations, pavements, sidewalks, utility lines and pad, etc., to grade, compacted per soil compaction requirements, and slope to drain towards the nearest appropriate structural stormwater management measure.

6.17.15. If fuel contaminated soils are found during the demolition or cut/fill operations, cease work immediately and notify either the Contracting Officer representative or the Contracting Officer for resolution that can include removal of contaminated soil, filling and capping area with clean, uncontaminated soil.

6.17.16. Asbestos/Hazardous Material Removal

6.17.16.1. The Contracting Officer representative will provide copies of all asbestos inspection reports, permits and disposal documents and Asbestos Removal, Transportation, and Disposal Documentation Forms to the ECB Asbestos Program Manager. North Carolina accredited personnel must perform all asbestos activities.

6.17.16.2. Dispose of all abated friable and non-friable ACM in accordance with all Federal, State, and local regulations at the Fort Bragg Landfill on LaMont Road.

6.17.16.3. If asbestos/ lead based paint/ hazardous materials are positively identified during building or site demolition, cease work immediately and notify either the Contracting Officer representative or the Contracting Officer for resolution.

6.17.17. Utility Demolition

6.17.17.1. Coordinate with the privatized electrical company (Sandhills Utilities Services), privatized water/sewer company (Old North Utility Service), Directorate of Information Management, and Directorate of Public Works during design phase and before construction.

6.17.17.2. Completely remove and cap existing utilities located beneath new building footprints (if abandoned) or reroute if utilities are being used by existing buildings. Coordinate demolition of existing utilities serving occupied buildings with construction of new utilities so that utilities to occupied buildings remain in service at all times.

6.17.18. AST/UST Demolition

6.17.18.1. The project area may be located in a UNKNOWN contaminated area. Typical contamination constituents are from former heating oil and diesel underground storage tanks (USTs). Other sources of soil and groundwater contamination are old unlined dump sites and aboveground storage tank (AST) spill sites.

6.17.18.2. The location of USTs removed by others is provided to the Contractor as "Information Only", and may not be complete. If an unknown underground storage tank is discovered during construction, please adhere to

Appendix AE. If an unknown tank meets the criteria for a Differing Site Condition under said contract clause, the clause provides an equitable adjustment for increased costs and/or delays associated with discovery and removal.

6.17.18.3. Remove and dispose of Underground Storage Tanks (UST) identified as “closed in place”. Remove and dispose of tanks and all remaining appurtenances, preferably, at a recycling center.

6.17.18.4. Fort Bragg requires that all tanks have a closure report stating the size, condition, and final disposition of the tank.

6.17.18.5. Non-leaking heating tanks are not regulated by the State of North Carolina. However, should it be discovered that there were leaks or that free product is present, complete and submit to the Contracting Officer a closure report that is in accordance with North Carolina regulations.

6.17.18.6. Although the Government will furnish all site investigations and reports documenting project area contamination, the possibility exists that soils with previously-unknown contamination may be discovered. Appendix AE addresses this situation.

6.17.18.7. Pump out and dispose of any free product/sediment that is in the tank and remove up to 140 cubic yards of contaminated soil per UST. All fill must be clean and replaced to grade. Clean fill is defined as any soil removed from the excavation that is less than 10 pap (North Carolina UST action level).

6.17.18.8. Where applicable, remove Above Ground Storage Tanks (AST) and deliver to DPW for re-issue. Contact DPW to arrange for removal of any fuel that may be remaining in the tank. Render the tank safely inert for explosive hazard prior to removal. Address inerting and moving procedures as an Appendix in the Accident Prevention Plan. Up to 10 cubic yards of contaminated soil can be removed from an AST site.

6.17.18.9. Dispose of all contaminated soils and contaminated wash waters at a licensed facility.

6.17.18.10. Remove all contaminated soils and wash waters within 15 days of stockpiling.

6.17.18.11. Secure contaminated soils and prevent run-off by adequate containment practices. The Contractor is responsible for any surface contamination caused by inadequate site protection.

6.17.18.12. Provide Disposal receipts to the Contracting Officer Representative within 10 days of removal from the site.

6.17.19. Demolition Material Disposal. Contractor See Appendix AC for information on disposing of demolition materials in Fort Bragg’s Landfill.

6.18. ADDITIONAL FACILITIES

None

End of Section 01 10 00.01

**SECTION 01 33 00.01**
REV 1.2 - 31 AUG 2009

**SUBMITTAL PROCEDURES**
**(DESIGN-BUILD TASK ORDERS)**

## 1.0 GENERAL

1.13. GOVERNMENT APPROVED OR CONCURRED WITH SUBMITTALS

~~**ATTACHMENT A SAMPLE PRELIMINARY SUBMITTAL REGISTER INPUT FORM (Updated 31 AUGUST 2009)**~~

**1.0 GENERAL**

1.1.1. This section contains requirements specifically applicable to this task order. The requirements of Base ID/IQ contract Section 01 33 30 apply to this task order, except as otherwise specified herein.

1.13. GOVERNMENT APPROVED OR CONCURRED WITH SUBMITTALS

Upon completion of review of submittals requiring Government approval or concurrence, the Government will stamp and date the submittals as approved or concurred.~~the submittals will be identified as having received approval by being so stamped and dated.~~ The Government will retain two (2) copies of the submittal ~~will be retained by the Contracting Officer~~ and return two (2) copy(ies) of the submittal ~~will be returned to the Contractor~~.

~~ATTACHMENT A SAMPLE PRELIMINARY SUBMITTAL REGISTER INPUT FORM (Updated 31 AUGUST 2009)~~

End of Section 01 33 00.01

**SECTION 01 33 16**
REV 2.234 – 28 FEB 2010

**DESIGN AFTER AWARD**

**1.0 GENERAL INFORMATION**

1.1. INTRODUCTION

1.2. DESIGNER OF RECORD

**2.0 PRODUCTS (Not Applicable)**

**3.0 EXECUTION**

3.1. PRE-WORK ACTIVIES & CONFERENCES

3.1.1. Design Quality Control Plan

3.1.2. Post Award Conference

3.1.3. Partnering & Project Progress Processes

3.1.4. Initial Design Conference

3.1.5. Pre-Construction Conference

3.2. STAGES OF DESIGN SUBMITTALS AND OVER THE SHOULDER PROGRESS REVIEWS

3.2.1. Site/Utilities

3.2.2. Interim Design Submittals

3.2.3. Over-the-Shoulder Progress Reviews

3.2.4. Final Design Submissions

3.2.5. Design Complete Submittals

3.2.6. Holiday Periods for Government Review or Actions

3.2.7. Late Submittals and Reviews

3.3. DESIGN CONFIGURATION MANAGEMENT

3.3.1. Procedures

3.3.2. Tracking Design Review Comments

3.3.3. Design and Code Checklists

3.4. INTERIM DESIGN REVIEWS AND CONFERENCES

3.4.1. General

3.4.2. Procedures

3.4.3. Conference Documentation

3.5. INTERIM DESIGN REQUIREMENTS

3.5.1. Drawings

3.5.2. Design Analyses

3.5.3. Geotechnical Investigations and Reports

3.5.4. LEED Documentation

3.5.5. Energy Conservation

3.5.6. Specifications

3.5.7. Building Rendering

3.5.8. Interim Building Design Contents

3.6. FINAL DESIGN REVIEWS AND CONFERENCES

3.7. FINAL DESIGN REQUIREMENTS

3.7.1. Drawings

3.7.2. Design Analysis

3.7.3. Specifications

3.7.4. Submittal Register

3.7.5. Preparation of DD Form 1354 (Transfer of Real Property)

3.7.6. Acceptance and Release for Construction

3.8. DESIGN COMPLETE CONSTRUCTION DOCUMENT REQUIREMENTS

3.9. SUBMITTAL DISTRIBUTION, MEDIA AND QUANTITIES

3.9.1. Submittal Distribution and Quantities

3.9.2. Web based Design Submittals

3.9.3. Mailing of Design Submittals

3.10. AS-BUILT DOCUMENTS

**ATTACHMENT A STRUCTURAL INTERIOR DESIGN (SID) REQUIREMENTS**

**ATTACHMENT B NOT USED**

**ATTACHMENT C TRACKING COMMENTS IN DRCHECKS**

**ATTACHMENT D SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW**

**ATTACHMENT E LEED SUBMITTALS**

**ATTACHMENT F BUILDING INFORMATION MODELING REQUIREMENTS**

**ATTACHMENT G DESIGN SUBMITTAL DIRECTORY AND SUBDIRECTORY FILE ARRANGEMENT**

## 1.0 GENERAL INFORMATION

1.1. INTRODUCTION

1.1.1. The information contained in this section applies to the design required after award. After award, the Contractor will develop the accepted proposal into the completed design, as described herein.

1.1.2. The Contractor may elect to fast track the design and construction that is, proceed with construction of parts of the sitework and facilities prior to completion of the overall design. To facilitate fast tracking, the Contractor may elect to divide the design into no more than ten (10) design packages per major facility type and no more than three (3) design packages for site and associated work. The Contractor shall designate how it will package the design, consistent with its overall plan for permitting (where applicable) and construction of the project. See Sections 01 33 00 SUBMITTAL PROCEDURES and 01 32 01.00 10 PROJECT SCHEDULE for requirements for identifying and scheduling the design packaging plan in the submittal register and project schedule. See also Sections 01 10 00 STATEMENT OF WORK and 01 57 20.00 10 ENVIRONMENTAL PROTECTION for any specified permit requirements. If early procurement of long-lead item construction materials or installed equipment, prior to completion of the associated design package, is necessary to facilitate the project schedule, the Contractor shall also identify those long-lead items and how it will assure design integrity of the associated design package to meet the contract requirements (The Contract consists of the Solicitation requirements and the accepted proposal). Once the Government is satisfied that the long-lead items meet the contract requirements, the Contracting Officer will allow the Contractor to procure the items at its own risk.

1.1.3. The Contractor may proceed with the construction work included in a separate design package after the Government has reviewed the final (100%) design submission for that package, review comments have been addressed and resolved to the Government's satisfaction and the Contracting Officer (or the Administrative Contracting Officer) has agreed that the design package may be released for construction.

1.1.4. INTEGRATED DESIGN. To the maximum extent permitted for this project, use a collaborative, integrated design process for all stages of project delivery with comprehensive performance goals for siting, energy, water, materials and indoor environmental quality and ensures incorporation of these goals. Consider all stages of the building lifecycle, including deconstruction.

1.2. DESIGNER OF RECORD

The Design-Build Contractor (“Design-Builder”, “D-B” or simply “Contractor”) shall identify, for approval, the Designer of Record (“DOR”) that will be responsible for each area of design. One DOR may be responsible for more than one area. All areas of design disciplines shall be accounted for by a listed, Professional Registered, DOR. The DOR’s shall stamp, sign, and date each design drawing and other design deliverables under their responsible discipline at each design submittal stage (see contract clause Registration of Designers). If the deliverables are not ready for release for construction, they should be identified as "preliminary" or "not for release for construction" or by using some other appropriate designation. The DOR(s) shall also be responsible for maintaining the integrity of the design and for compliance with the contract requirements through construction and documentation of the as-built condition by coordination, review and approval of extensions of design, material, equipment and other construction submittals, review and approval or disapproval of requested deviations to the accepted design or to the contract, coordination with the Government of the above activities, and by performing other typical professional designer responsibilities.

## 2.0 PRODUCTS (Not Applicable)

## 3.0 EXECUTION

3.1. PRE-WORK ACTIVITIES & CONFERENCES

3.1.1. Design Quality Control Plan

The DB Contractor shall submit for Government acceptance, a Design Quality Control Plan in accordance with Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL before design may proceed.

3.1.2. Post Award Conference

3.1.2.1. The government will conduct a post award contract administration conference at the project site, as soon as possible after contract award. This will be coordinated with issuance of the contract notice to proceed (NTP). The Contractor and major sub-contractor representatives shall participate. All designers need not attend this first meeting. Government representatives will include COE project delivery team members, facility users, facility command representatives, and installation representatives. The Government will provide an agenda, meeting goals, meeting place, and meeting time to participants prior to the meeting.

3.1.2.2. The post award conference shall include determination and introduction of contact persons, their authorities, contract administration requirements, discussion of expected project progress processes, and coordination of subsequent meetings for quality control (see Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL), Partnering (see below and SCR: Partnering), and the initial design conference (see below).

3.1.2.3. The government will introduce COE project delivery team members, facility users, facility command representatives, and installation representatives. The DB Contractor shall introduce major subcontractors, and other needed staff. Expectations and duties of each person shall be defined for all participants. A meeting roster shall be developed and distributed by the government with complete contact information including name, office, project role, phone, mailing and physical address, and email address.

3.1.3. Partnering & Project Progress Processes

3.1.3.1. The initial Partnering conference may be scheduled and conducted at any time with or following the post award conference. The Government proposes to form a partnership with the DB Contractor to develop a cohesive building team. This partnership will involve the COE project delivery team members, facility users, facility command representatives, installation representatives, Designers of Record, major subcontractors, contractor quality control staff, and contractor construction management staff. This partnership will strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve a quality project within budget and on schedule. This partnership will be bilateral in membership and participation will be totally voluntary. All costs, excluding labor and travel expenses, shall be shared equally between the Government and the Contractor. The Contractor and Government shall be responsible for their own labor and travel costs. Normally, partnering meetings will be held at or in the vicinity of the project installation.

3.1.3.2. As part of the partnering process, the Government and Contractor shall develop, establish, and agree to comprehensive design development processes including conduct of conferences, expectations of design development at conferences, fast-tracking, design acceptance, Structural Interior Design (SID)/ Furniture, Fixtures & Equipment (FF&E) design approval, project closeout, etc. The government will explain contract requirements and the DB Contractor shall review their proposed project schedule and suggest ways to streamline processes.

3.1.4. Initial Design Conference

The initial design conference may be scheduled and conducted at the project installation any time after the post award conference, although it is recommended that the partnering process be initiated with or before the initial design conference. Any design work conducted after award and prior to this conference should be limited to site and is discouraged for other items. All Designers of Record shall participate in the conference. The purpose of the meeting is to introduce everyone and to make sure any needs the contractor has are assigned and due dates established as well as who will get the information. See also Attachment F, BUILDING INFORMATION MODELING REQUIREMENTS for discussion concerning the BIM Implementation Plan demonstration at this meeting. The DB Contractor shall conduct the initial design conference.

3.1.5. Pre-Construction Conference

Before starting construction activities, the Contractor and Government will jointly conduct a pre-construction administrative conference to discuss any outstanding requirements and to review local installation requirements for start of construction. It is possible there will be multiple Pre-Construction Conferences based on the content of the design packages selected by the Contractor. The Government will provide minutes of this meeting to all participants.

3.2. STAGES OF DESIGN SUBMITTALS AND OVER THE SHOULDER PROGRESS REVIEWS

The stages of design submittals described below define Government expectations with respect to process and content. The Contractor shall determine how to best plan and execute the design and review process for this project, within the parameters listed below. As a minimum, the Government expects to see at least one interim design submittal, at least one final design submittal before construction of a design package may proceed and at least one Design Complete submittal that documents the accepted design. The Contractor may sub-divide the design into separate packages for each stage of design and may proceed with construction of a package after the Government accepts the final design for that package. See discussion on waivers to submission of one or more intermediate design packages where the parties partner during the design process. See also Attachment F, BUILDING INFORMATION MODELING REQUIREMENTS for discussion concerning BIM and the various stages of design submittals and over-the-shoulder progress reviews**.**

3.2.1. Site/Utilities

To facilitate fast-track design-construction activities the contractor may submit a final (100%) site and utility design as the first design submittal or it may elect to submit interim and final site and utility design submittals as explained below. Following review, resolution, and incorporation of all Government comments, and submittal of a satisfactory set of site/utility design documents, after completing all other pre-construction requirements in this contract and after the pre-construction meeting, the Government will allow the Contractor to proceed with site development activities, including demolition where applicable, within the parameters set forth in the accepted design submittal. For the first site and utility design submission, whether an interim or final, the submittal review, comment, and resolution times from this specification apply, except that the Contractor shall allow the Government a 14 calendar day review period, exclusive of mailing time. No on-site construction activities shall begin prior to written Government clearance to proceed.

3.2.2. Interim Design Submittals

The Contractor may submit either a single interim design for review, representing a complete package with all design disciplines, or split the interim design into smaller, individual design packages as it deems necessary for fast-track construction purposes. As required in Section 01 32 01.00 10 PROJECT SCHEDULE, the Contractor shall schedule its design and construction packaging plan to meet the contract completion period. This submission is the Government's primary opportunity to review the design for conformance to the solicitation and to the accepted contract proposal and to the Building Codes at a point where required revisions may be still made, while minimizing lost design effort to keep the design on track with the contract requirements. The requirements for the interim design review submittals and review conferences are described hereinafter. This is not necessarily a hold point for the design process; the Contractor may designate the interim design submittal(s) as a snapshot and proceed with design development at its own risk. See below for a waiver, where the parties establish an effective over-the-shoulder progress review procedure through the partnering process that would eliminate the need for or expedite a formal intermediate design review on one or more individual design packages.

3.2.3. Over-the-Shoulder Progress Reviews

To facilitate a streamlined design-build process, the Government and the Contractor may agree to one-on-one reviewer or small group reviews, electronically, on-line (if available within the Contractor's standard design practices) or at the Contractor's design offices or other agreed location, when practicable to the parties. The Government and Contractor will coordinate such reviews to minimize or eliminate disruptions to the design process. Any data required for these reviews shall normally be provided in electronic format, rather than in hard copy. If the Government and Contractor establish and implement an effective, mutually agreeable partnering procedure for regular (e.g., weekly) over-the shoulder review procedures that allow the Government reviewers the opportunity to keep fully informed of the progress, contents, design intent, design documentation, etc. of the design package, the Government will agree to waive or to expedite the formal intermediate design review period for that package. The Contractor shall still be required to submit the required intermediate design documentation, however the parties may agree to how that material will be provided, in lieu of a formal consolidated submission of the package. It should be noted that Government funding is extremely limited for non-local travel by design reviewers, so the maximum use of virtual teaming methods must be used. Some possible examples include electronic file sharing, interactive software with on-line or telephonic conferencing, televideo conferencing, etc. The Government must still perform its Code and Contract conformance reviews, so the Contractor is encouraged to partner with the reviewers to find ways to facilitate this process and to facilitate meeting or bettering the design-build schedule. The Contractor shall maintain a fully functional configuration management system as described herein to track design revisions, regardless of whether or not there is a need for a formal intermediate design review. The formal intermediate

review procedures shall form the contractual basis for the official schedule, in the event that the partnering process determines that the formal intermediate review process to be best suited for efficient project execution. However, the Government pledges to support and promote the partnering process to work with the Contractor to find ways to better the design schedule.

3.2.4. Final Design Submissions

This submittal is required for each design package prior to Government acceptance of that design package for construction. The requirements for the final design submittal review conferences and the Government's acceptance for start of construction are described herein after.

3.2.5. Design Complete Submittals

After the final design submission and review conference for a design package, the Contractor shall revise the design package to incorporate the comments generated and resolved in the final review conferences, perform and document a back-check review and submit the final, design complete documents, which shall represent released for construction documents. The requirements for the design complete submittals are described hereinafter.

3.2.6. Holiday Periods for Government Review or Actions

The Contractor shall not schedule meetings, Government reviews or responses during the last two weeks of December or other designated Government Holidays (including Friday after Thanksgiving) and shall exclude such dates and periods from any durations specified herein for Government actions.

3.2.7. Late Submittals and Reviews

If the Contractor cannot meet its scheduled submittal date for a design package, it must revise the proposed submittal date and notify the government in writing, at least one (1) week prior to the submittal, in order to accommodate the Government reviewers' other scheduled activities. If a design submittal is over one (1) day late in accordance with the latest revised design schedule, or if notification of a proposed design schedule change is less than seven (7) days from the anticipated design submission receipt date, the Government review period may be extended up to seven (7) days due to reviewers' schedule conflicts. If the Government is late in meeting its review commitment and the delay increases the Contractor's cost or delays completion of the project, the Suspension of Work and Defaults clauses provide the respective remedy or relief for the delay.

3.3. DESIGN CONFIGURATION MANAGEMENT

3.3.1. Procedures

The Contractor shall develop and maintain effective, acceptable design configuration management (DCM) procedures to control and track all revisions to the design documents after the Interim Design Submission through submission of the As-Built documents. During the design process, this will facilitate and help streamline the design and review schedule. After the final design is accepted, this process provides control of and documents revisions to the accepted design (See Special Contract Requirement: Deviating From the Accepted Design). The system shall include appropriate authorities and concurrences to authorize revisions, including documentation as to why the revision must be made. The DCM data shall be available to the Government reviewers at all times. The Contractor may use its own internal system with interactive Government concurrences, where necessary or may use the Government's "DrChecks Design Review and Checking System" (see below and Attachment C).

3.3.2. Tracking Design Review Comments

Although the Contractor may use its own internal system for overall design configuration management, the Government and the Contractor shall use the DrChecks Design Review and Checking System to initiate, respond to, resolve and track Government design compliance review comments. This system may be useful for other data which needs to be interactive or otherwise available for shared use and retrieval. See Attachment C for details on how to establish an account and set-up the DrChecks system for use on the project.

3.3.3. Design and Code Checklists

The Contractor shall develop and complete various discipline-specific checklists to be used during the design and quality control of each submittal. These completed checklists shall be submitted with each design submittal, as applicable, as part of the project documentation. See Section 01 45 04.00 10 Contractor Quality Control, Attachment D for a Sample Fire Protection and Life Safety Code review checklist and Attachment E for LEED SUBMITTALS.

3.4. INTERIM DESIGN REVIEWS AND CONFERENCES

3.4.1. General

At least one interim design submittal, review and review conference is required for each design package (except that, per paragraph 3.2.1, the Contractor may skip the interim design submission and proceed directly to final design on the sitework and utilities package). The DB Contractor may include additional interim design conferences or over-the-shoulder reviews, as needed, to assure continued government concurrence with the design work. The interim submittal review periods and conferences shall be included in the project schedule and shall indicate what part of the design work is at what percentage of completion. The required interim design conferences shall be held when interim design requirements are reached as described below. See also Paragraph: **Over-the-Shoulder Progress Reviews** for a waiver to the formal interim design review.

3.4.2. Procedures

After receipt of an Interim Design submission, the Contractor shall allow the Government fourteen (14) calendar days after receipt of the submission to review and comment on the interim design submittal. For smaller design packages, especially those that involve only one or a few separate design disciplines, the parties may agree on a shorter review period or alternative review methods (e.g., over-the –shoulder or electronic file sharing), through the partnering process. For each interim design review submittal, the COR will furnish, to the Contractor, a single consolidated, validated listing of all comments from the various design sections and from other concerned agencies involved in the review process using the DrChecks Design Review and Checking System. The review will be for conformance with the technical requirements of the solicitation and the Contractor's RFP proposal. If the Contractor disagrees technically with any comment or comments and does not intend to comply with the comment, he/she must clearly outline, with ample justification, the reasons for noncompliance within five (5) days after receipt of these comments in order that the comment can be resolved. The Contractor shall furnish disposition of all comments, in writing, through DrChecks. The Contractor is cautioned that if it believes the action required by any comment exceeds the requirements of this contract, that it should take no action and notify the COR in writing immediately. The Interim Review conference will be held for each design submittal at the installation. The Contractor shall bring the personnel that developed the design submittal to the review conference. The conference will take place the week after the receipt of the comments by the Contractor. For smaller fast-track packages that involve only a few reviewers, the parties may agree to alternative conferencing methods, such as teleconferencing, or televideo, where available, as determined through Partnering.

3.4.3. Conference Documentation

3.4.3.1. In order to facilitate and accelerate the Government code and contract conformance reviews, the Contractor shall identify, track resolution of and maintain all comments and action items generated during the design process and make this available to the designers and reviewers prior to the Interim and subsequent design reviews.

3.4.3.2. The DB Contractor shall prepare meeting minutes and shall enter final resolution of all comments into DrChecks. Copies of comments, annotated with comment action agreed on, will be made available to all parties before the conference adjourns. Unresolved problems will be resolved by immediate follow-on action at the end of conferences. Valid comments shall be incorporated. The Government reserves the right to reject design document submittals if comments are significant. Participants shall determine if any comments are critical enough to require further design development prior to government concurrence. Participants shall also determine how to proceed in order to obtain government concurrence with the design work presented.

3.5. INTERIM DESIGN REQUIREMENTS

Interim design deliverables shall include drawings, specifications, and design analysis for the part of design that the DB Contractor considers ready for review.

3.5.1. Drawings

Drawings shall include comments from any previous design conferences incorporated into the documents to provide an interim design for the “part” submitted.

3.5.2. Design Analyses

3.5.2.1. The designers of record shall prepare and present design analyses with calculations necessary to substantiate and support all design documents submitted. Address design substantiation required by the applicable codes and references and pay particular attention to the following listed items:

3.5.2.2. For parts including sitework, include site specific civil calculations.

3.5.2.3. For parts including structural work, include structural calculations.

(a) Identify all loads to be used for design.

(b) Describe the method of providing lateral stability for the structural system to meet seismic and wind load requirements. Include sufficient calculations to verify the adequacy of the method.

(c) Provide calculations for all principal roof, floor, and foundation members and bracing and secondary members.

(d) Provide complete seismic analyses for all building structural, mechanical, electrical, architectural, and building features as dictated by the seismic zone for which the facility is being constructed.

(e) Computer generated calculations must identify the program name, source, and version. Provide input data, including loads, loading diagrams, node diagrams, and adequate documentation to illustrate the design. The schematic models used for input must show, as a minimum, nodes/joints, element/members, materials/properties, and all loadings, induced settlements/deflections, etc., and a list of load combinations. Include an output listing for maximum/minimum stresses/forces and deflections for each element and the reactions for each loading case and combination.

(f) See also the Security (Anti-Terrorism) requirements below for members subject to Anti-Terrorist Force Protection (ATFP) and Progressive Collapse requirements.

(g) Fully coordinate and integrate the overall structural design between two different or interfacing construction types, such as modular and stick-built or multistory, stacked modular construction. Provide substantiation of structural, consolidation/settlement analysis, etc., as applicable, through the interfaces.

3.5.2.4. For Security (Anti-Terrorism): Provide a design narrative and calculations where applicable, demonstrating compliance with each of the 22 standards in UFC 4-010-01, which includes Design of Buildings to Resist Progressive Collapse (use the most recent version of UFC 4-023-03, regardless of references to any specific version in UFC 4-010-01). Where sufficient standoff distance is not being provided, show calculations for blast resistance of the structural system and building envelope. Show complete calculations for members subjected to ATFP loads, e.g., support members of glazed items (jambs, headers, sills) connections of windows to support members and connections of support members to the rest of the structure. For 3 story and higher buildings, provide calculations to demonstrate compliance with progressive collapse requirements.

3.5.2.5. For parts including architectural work, include building floor area analysis.

3.5.2.6. For parts including mechanical work, include HVAC analysis and calculations. Include complete design calculations for mechanical systems. Include computations for sizing equipment, compressed air systems, air duct design, and U-factors for ceilings, roofs and exterior walls and floors. Contractor shall employ commercially available energy analysis techniques to determine the energy performance of all passive systems and features. Use of hourly energy load computer simulation is required (see paragraph 3.5.5.2 for list of acceptable software). Based on the results of calculations, provide a complete list of the materials and equipment proposed with the manufacturer's published cataloged product installation specifications and roughing-in data.

3.5.2.7. For parts including life safety, include building code analysis and sprinkler and other suppression systems. Notwithstanding the requirements of the Codes, address the following:

(a) A registered fire protection engineer (FPE) must perform all fire protection analyses. Provide the fire protection engineer's qualifications. See Section 01 10 00, paragraph 5 for qualifications.

(b) Provide all references used in the design including Government design documents and industry standards used to generate the fire protection analysis.

(c) Provide classification of each building in accordance with fire zone, building floor areas and height and number of stories.

(d) Provide discussion and description of required fire protection requirements including extinguishing equipment, detection equipment, alarm equipment and water supply. Alarm and detection equipment shall interface to requirements of Electronic Systems.

(e) Provide hydraulic calculations based on water flow test for each sprinkler system to insure that flow and pressure requirements can be met with current water supply. Include copies of Contractor's water flow testing done to certify the available water source.

3.5.2.8. For parts including plumbing systems:

(a) List all references used in the design.

(b) Provide justification and brief description of the types of plumbing fixtures, piping materials and equipment proposed for use.

(c) Detail calculations for systems such as sizing of domestic hot water heater and piping; natural gas piping; LP gas piping and tanks, fuel oil piping and tanks, etc., as applicable.

(d) When the geotechnical report indicates expansive soils are present, indicate in the first piping design submittal how piping systems will be protected against damage or backfall/backflow due to soil heave (from penetration of slab to the 5 foot building line).

3.5.2.9. For elevator systems:

(a) List all criteria codes, documents and design conditions used.

(b) List any required permits and registrations for construction of items of special mechanical systems and equipment.

3.5.2.10. For parts including electrical work, include lighting calculations to determine maintained foot-candle levels, electrical load analysis and calculations, electrical short circuit and protective device coordination analysis and calculations and arc fault calculations.

3.5.2.11. For parts including telecommunications voice/data (including SIPRNET, where applicable), include analysis for determining the number and placement of outlets

3.5.2.12. For Cathodic Protection Systems, provide the following stamped report by the licensed corrosion engineer or NACE specialist with the first design submission. Clearly describe structures, systems or components in soil or water to be protected. Describe methods proposed for protection of each.

3.5.3. Geotechnical Investigations and Reports:

3.5.3.1. The contractor's licensed geotechnical engineer shall prepare a final geotechnical evaluation report, to be submitted along with the first foundation design submittal. Make this information available as early as possible during the over-the-shoulder progress review process. Summarize the subsurface conditions and provide recommendations for the design of appropriate utilities, foundations, floor slabs, retaining walls, embankments, and pavements. Include compaction requirements for fill and backfill under buildings, sidewalks, other structures and open areas. Recommend foundation systems to be used, allowable bearing pressures for footings, lateral load resistance capacities for foundation systems, elevations for footings, grade beams, slabs, etc. Provide an assessment of post-construction settlement potential including total and differential. Provide recommendations regarding lateral earth pressures (active, at-rest, passive) to be used in the design of retaining walls. Include the recommended spectral accelerations and Site Class for seismic design along with an evaluation of any seismic hazards and recommendations for mitigation, if required. Include calculations to support the recommendations for bearing capacity, settlement, and pavement sections. Include supporting documentation for all recommended design parameters such as Site Class, shear strength, earth pressure coefficients, friction factors, subgrade

modulus, California Bearing Ratio (CBR), etc. Provide earthwork recommendations, expected frost penetration, expected groundwater levels, recommendations for dewatering and groundwater control and the possible presence of any surface or subsurface features that may affect the construction of the project such as sinkholes, boulders, shallow rock, old fill, old structures, soft areas, or unusual soil conditions. Include pH tests, salinity tests, resistivity measurements, etc., required to design corrosion control and grounding systems. Include the raw field data. Arrange a meeting with the Government subsequent to completion and evaluation of the site specific geotechnical exploration to outline any differences encountered that are inconsistent with the Government provided preliminary soils information. Clearly outline differences which require changes in the foundation type, or pavement and earthwork requirements from that possible and contemplated using the Government furnished preliminary soils investigation, which result in a change to the design or construction. Any equitable adjustment is subject to the provisions of the contract's Differing Site Conditions Clause.

3.5.3.2. Vehicle Pavements: The Contractor's geotechnical report shall contain flexible and rigid pavement designs, as applicable for the project, including design CBR and modulus of subgrade reaction and the required compaction effort for subgrades and pavement layers. Provide Information on the types of base course materials available in the area and design strengths.

3.5.3.3. The DB Contractor and the professional geotechnical engineer consultant shall certify in writing that the design of the project has been developed consistent with the Contractor's final geotechnical report. The certification shall be stamped by the consulting professional geotechnical engineer and shall be submitted with the first design submission. If revisions are made to the initial design submission, a new certification shall be provided with the final design submission.

3.5.4. LEED Documentation:

Assign a LEED Accredited Professional, responsible to track LEED planning, performance and documentation for each LEED credit through construction closeout. Incorporate LEED credits in the plans, specifications and design analyses. Develop LEED supporting documentation as a separable portion of the Design Analysis and provide with each required design submittal. Include the LEED Project checklist for each non-exempt facility (one checklist may be provided for multiple facilities in accordance with the LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects and the LEED SUBMITTALS (Attachment E, herein) with each submittal. Final design submittal for each portion of the work must include all required design documentation relating to that portion of work (example - all site credit design documents with final site design). Submittal requirements are as indicated in Attachment E, LEED SUBMITTALS. Submit all documentation indicated on Attachment E as due at final design at final design submittal (for fast-track projects with multiple final design submittals, this shall be at the last scheduled final design submittal). All project documentation related to LEED shall conform to USGBC requirements for both content and format, including audit requirements and be separate from other design analyses. Maintain and update the LEED documentation throughout project progress to construction closeout and shall compile product data, receipts, calculations and other data necessary to substantiate and support all credits claimed. The Government may audit any or all individual credits. Audit documentation is not required to be submitted unless requested. These requirements apply to all projects. If the project requires the Contractor to obtain USGBC certification, the Contractor shall also be responsible for obtaining USGBC certification and shall provide written evidence of certification with the construction closeout LEED documentation submittal. Install the USGBC building plaque at the location indicated by the Government upon receipt. If Contractor obtains USGBC interim design review, submit the USGBC review to the Government within 30 days of receipt for information only.

3.5.4.1. LEED Documentation for Technology Solution Set. If the Solicitation provides a Prescriptive Technology Solution Set, use of the Technology Solution set has no effect on LEED documentation requirements. Provide all required LEED documentation, including energy analysis, in accordance with LEED requirements when using the Technology Solution Set.~~If a building design complies fully with its technology solution set, when such is included in the Solicitation, use the data provided with the technology solution set when preparing LEED credit EA1 documentation. If the project requires USGBC certification and a building design complies fully with its technology solution set included in the Solicitation, the Government will provide a partially completed LEED Letter Template, without project energy cost, for the building. The designer must add the project energy cost data.~~

3.5.5. Energy Conservation:

3.5.5.1. Refer to Section 01 10 00, Paragraph 5. Interim and Final Design submittals shall demonstrate that each building including the building envelope, HVAC systems, service water heating, power, and lighting systems meet

the Mandatory Provisions and the Prescriptive Path requirements of ASHRAE 90.1. Use Compliance Documentation forms available from ASHRAE and included in the ASHRAE 90.1 User's Manual for this purpose. The Architectural Section of the Design Analysis shall include completed forms titled "Building Envelope Compliance Documentation Parts I and II". The Heating Ventilating and Air Conditioning (HVAC) Section of the Design Analysis shall include a completed form titled "HVAC Simplified Approach Option - Part I" if this approach is allowed by the Standard. Otherwise, the HVAC Section of the Design Analysis shall include completed forms titled "HVAC Mandatory Provisions - Part II" and "HVAC Prescriptive Requirements - Part III". The Plumbing Section of the Design Analysis shall include a completed form titled "Service Water Heating Compliance Documentation". The Electrical Section of the Design Analysis shall include an explanatory statement on how the requirements of ASHRAE 90.1-2004 Chapter 8 Power were met. The Electrical Section of the Design Analysis shall also include a completed form titled "Lighting Compliance Documentation".

3.5.5.2. Interim and Final Design submittals which address energy consuming systems, (heating, cooling, service hot water, lighting, power, etc.) must also include calculations in a separate Energy Conservation Section of the Design Analysis which demonstrate and document (a) the baseline energy consumption for the facility or facilities under contract, that would meet the requirements of ANSI/ASHRAE/IESNA Standard 90.1 and (b) the energy consumption of the facility or facilities under contract utilizing the materials and methods required by this construction contract. Use the USGBC Energy and Atmosphere (EA) Credit 1 compliance template / form or an equivalently detailed form for documenting compliance with the energy reduction requirements. This template / form is titled PERFORMANCE RATING METHOD and is available when the project is registered for LEED. The calculation methodology used for this documentation and analysis shall follow the guidelines set forth in Appendix G of ASHRAE 90.1, with two exceptions: a) receptacle and process loads may be omitted from the calculation; and b) the definition of the terms in the formula for Percentage Improvement found in paragraph G1.2 are modified as follows: Baseline Building Performance shall mean the annual energy consumption calculated for a building design intended for use as a baseline for rating above standard design meeting the minimum requirements of the energy standard, and Proposed Building Performance shall mean annual energy consumption calculated for the proposed building design intended for construction. This calculation shall address all energy consuming systems in a single integrated methodology. Include laboratory fume hoods and kitchen ventilation loads in the energy calculation. They are not considered process loads. Individual calculations for heating, cooling, power, lighting, power, etc. systems will not be acceptable. The following building simulation software is acceptable for use in calculating building energy consumption: Hourly Analysis Program (HAP) by Carrier Corp., TRACE 700 by Trane Corp., DOE-2 by US Department of Energy, EnergyPlus by DOD/DOE.

3.5.6. Specifications

Specifications may be any one of the major, well known master guide specification sources (use only one source) such as MASTERSPEC from the American Institute of Architects, SPECTEXT from Construction Specification Institute or Unified Facility Guide Specifications (UFGS using MASTERFORMAT 2004 numbering system), etc. (including specifications from these sources). Manufacturers' product specifications, utilizing CSI's Manu-Spec, three part format may be used in conjunction with the selected specifications. The designers of record shall edit and expand the appropriate Specifications to insure that all project design requirements, current code requirements, and regulatory requirements are met. Specifications shall clearly identify, where appropriate, specific products chosen to meet the contract requirements (i.e., manufacturers' brand names and model numbers or similar product information).

3.5.7. Building Rendering

DB Contractor shall present and provide a draft color computer, artist, or hand drawn rendering with the conceptual design submittal of the building exterior. Perspective renderings shall include a slightly overhead view of the entire building to encompass elevations and the roof configuration of the building. After Government review and acceptance, provide a final rendering, including the following:

Three (3) 18" x 24" color prints, framed and matted behind glass with project title underneath the print.

One (1) Image file (high resolution) in JPG format on CD for those in the submittal distribution list.

3.5.8. Interim Building Design Contents

The following list represents what the Government considers should be included in the overall completed design for a facility or project. It is not intended to limit the contractor from providing different or additional information as needed to support the design presented, including the require design analyses discussed above. As the Contractor develops individual design packages and submits them for Interim review, include as much of the applicable information for an individual design package as is developed at the Interim design level for review purposes. These pieces shall be developed as the design progresses toward the design complete stage.

3.5.8.1. Lawn and Landscaping Irrigation System

3.5.8.2. Landscape, Planting and Turfing

3.5.8.3. Architectural

(a) Design Narrative

(b) Architectural Floor Plans, Typical Wall and Roof Sections, Elevations

(c) Finish schedule

(d) All required equipment

(e) Special graphics requirements

(f) Door and Window Schedules

(g) Hardware sets using BHMA designations

(h) Composite floor plan showing all pre-wired workstations

(i) Structural Interior Design (SID) package: See ATTACHMENT A for specific requirements

(j) Furniture, Fixtures & Equipment (FF&E) design package: See ATTACHMENT B for specific requirements

3.5.8.4. Structural Systems. Include:

(a) Drawings showing principal members for roof and floor framing plans as applicable

(b) Foundation plan showing main foundation elements where applicable

(c) Typical sections for roof, floor, and foundation conditions

3.5.8.5. Plumbing Systems

(a) Show locations and general arrangement of plumbing fixtures and major equipment

(b) Plan and isometric riser diagrams of all areas including hot water, cold water, waste and vent piping. Include natural gas (and meter as required), (natural gas and meter as required), (LP gas), (fuel oil) and other specialty systems as applicable.

(c) Include equipment and fixture connection schedules with descriptions, capacities, locations, connection sizes and other information as required

3.5.8.6. HVAC Systems

(a) Mechanical Floor Plans: The floor plans shall show all principle architectural features of the building which will affect the mechanical design. The floor plans shall also show the following:

(1) Room designations.

(2) Mechanical legend and applicable notes.

(3) Location and size of all ductwork and piping.

(4) Location and capacity of all terminal units (i.e., registers, diffusers, grilles, hydronic baseboards).

(5) Pre-Fabricated Paint Spray Booth (where applicable to project scope)

(6) Paint Preparation Area (where applicable to project scope)

(7) Exhaust fans and specialized exhaust systems.

(8) Thermostat location.

(9) Location of heating/cooling plant (i.e., boiler, chiller, cooling tower, etc).

(10) Location of all air handling equipment.

(11) Air balancing information.

(12) Flue size and location.

(13) Piping diagram for forced hot water system (if used).

(b) Equipment Schedule: Provide complete equipment schedules. Include:

(1) Capacity

(2) Electrical characteristics

(3) Efficiency (if applicable)

(4) Manufacturer's name

(5) Optional features to be provided

(6) Physical size

(7) Minimum maintenance clearances

(a) Details: Provide construction details, sections, elevations, etc., only where required for clarification of methods and materials of design.

(b) HVAC Controls: Submit complete HVAC controls equipment schedules, sequences of operation, wiring and logic diagrams, Input/Output Tables, equipment schedules, and all associated information. See the Statement of Work for additional specific requirements.

3.5.8.7. Fire Protection and Life Safety.

(a) Provide plan for each floor of each building that presents a compendium of the total fire protection features being incorporated into the design. Include the following types of information:

(1) The location and rating of any fire-resistive construction such as occupancy separations, area separations, exterior walls, shaft enclosures, corridors, stair enclosures, exit passageways, etc.

(2) The location and coverage of any fire detection systems

(3) The location and coverage of any fire suppression systems (sprinkler risers, standpipes, etc.)

(4) The location of any other major fire protection equipment

(5) Indicate any hazardous areas and their classification

(6) Schedule describing the internal systems with the following information: fire hazard and occupancy classifications, building construction type, GPM/square foot sprinkler density, area of operation and other as required

(b) Working plans and all other materials submitted shall meet NFPA 13 requirements, with respect to required minimum level of detail.

3.5.8.8. Elevators. Provide:

(a) Description of the proposed control system

(b) Description, approximate capacity and location of any special mechanical equipment for elevators.

3.5.8.9. Electrical Systems.

(a) Electrical Floor Plan(s): Show all principle architectural features of the building which will affect the electrical design. Show the following:

(1) Room designations.

(2) Electrical legend and applicable notes.

(3) Lighting fixtures, properly identified.

(4) Switches for control of lighting.

(5) Receptacles.

(6) Location and designation of panelboards. Clearly indicate type of mounting required (flush or surface) and reflect accordingly in specifications.

(7) Service entrance (conduit and main disconnect).

(8) Location, designation and rating of motors and/or equipment which requires electrical service. Show method of termination and/or connection to motors and/or equipment. Show necessary junction boxes, disconnects, controllers (approximate only), conduit stubs, and receptacles required to serve the motor and/or equipment.

(b) Building Riser Diagram(s) (from pad-mounted transformer to unit load center panelboard): Indicate the types and sizes of electrical equipment and wiring. Include grounding and metering requirements.

(c) Load Center Panelboard Schedule(s): Indicate the following information:

(1) Panelboard Characteristics (Panel Designation, Voltage, Phase, Wires, Main Breaker Rating and Mounting.

(2) Branch Circuit Designations.

(3) Load Designations.

(4) Circuit Breaker Characteristics. (Number of Poles, Trip Rating, AIC Rating)

(5) Branch Circuit Connected Loads (AMPS).

(6) Special Features

(d) Lighting Fixture Schedule(s): Indicate the following information:

(1) Fixture Designation.

(2) General Fixture Description.

(3) Number and Type of Lamp(s).

(4) Type of Mounting.

(5) Special Features.

(e) Details: Provide construction details, sections, elevations, etc. only where required for clarification of methods and materials of design.

3.5.8.10. Electronic Systems including the following responsibilities:

(a) Fire Detection and Alarm System. Design of the fire alarm and detection system shall include layout drawings for all devices and a riser diagram showing the control panel, annunciator panel, all zones, radio transmitter and interfaces to other systems (HVAC, sprinkler, etc.)

(b) Fire Suppression System Control. Specify all components of the Fire Suppression (FS) System in the FS section of the specifications. Clearly describe how the system will operate and interact with other systems such as the fire alarm system. Include a riser diagram on the drawings showing principal components and interconnections with other systems. Include FS system components on drawing legend. Designate all components shown on floor plans “FS system components” (as opposed to “Fire Alarm components”). Show location of FS control panels, HVAC control devices, sensors, and 120V power panel connections on floor plans. Indicate zoning of areas by numbers (1, 2, 3) and detectors sub-zoned for cross zoning by letter designations (A and B). Differentiate between ceiling mounted and under floor detectors with distinct symbols and indicate sub-zone of each.

(c) Public Address System

(d) Special Grounding Systems. Completely reflect all design requirements in the specifications and drawings. Specifications shall require field tests (in the construction phase), witnessed by the Government, to determine the effectiveness of the grounding system. Include drawings showing existing construction, if any.

(e) Cathodic Protection.

(f) Intrusion Detection, Card Access System

(g) Central Control and Monitoring System

(h) Mass Notification System

(i) Electrical Power Distribution Systems

3.5.8.11. Information Systems including the following responsibilities:

(a) Telecommunications Cabling

(b) Supporting Infrastructure

(c) Outside Plant (OSP) Cabling

(d) Include a layout of the voice/data outlets (including voice only wall & pay phones) on telecommunication floor plan drawing, location of SIPRNET data outlets (where applicable), and a legend and symbol definition to indicate height above finished floor. Show size of conduit and cable type and size on Riser Diagram. Do not show conduit runs between backboard and outlets on the floor plans. Show underground distribution conduit and cable with sizing from point of presence to entrance facility of building.

3.6. FINAL DESIGN REVIEWS AND CONFERENCES

A final design review and review conference will be held upon completion of final design at the project installation, or – where equipment is available - by video teleconference or a combination thereof, for any design package to receive Government acceptance to allow release of the design package for construction. For smaller separate design packages, the parties may agree on alternative reviews and conferences (e.g., conference calls and electronic file sharing, etc.) through the Partnering process. The Contractor shall include the final design conference in the project schedule and shall indicate what part of the design work is at 100% completion. The final design conference will be held after the Government has had seven (7) calendar days after receipt of the submission to review the final design package and supporting data. For smaller packages, especially those involving only one or a few design disciplines the parties may agree on a shorter period.

3.7. FINAL DESIGN REQUIREMENTS

Final design deliverables for a design package shall consist of 100% complete drawings, specifications, submittal register and design analyses for Government review and acceptance. The 100% design submission shall consist of drawings, specifications, updated design analyses and any permits required by the contract for each package submitted. In order to expedite the final design review, prior to the conference, the Contractor shall ensure that the design configuration management data and all review comment resolutions are up-to-date. Include the 100% SID and 100% FF&E binders for government approval. The Contractor shall have performed independent technical reviews (ITR's) and back-checks of previous comment resolutions, as required by Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL, including providing documentation thereof.

3.7.1. Drawings

3.7.1.1. Submit drawings complete with all contract requirements incorporated into the documents to provide a 100% design for each package submitted.

3.7.1.2. Prepare all drawings with the Computer-Aided Design and Drafting (CADD)/Computer-Aided Design (CAD) system, organized and easily referenced electronically, presenting complete construction information.

3.7.1.3. Drawings shall be complete. The Contractor is encouraged to utilize graphics, views, notes, and details which make the drawings easier to review or to construct but is also encouraged to keep such materials to those that are necessary.

3.7.1.4. Provide detail drawings that illustrate conformance with the contract. Drawings shall include room finish schedules, corresponding color/finish/special items schedules, and exterior finish schedules that agree with the submitted SID binders.

3.7.1.5. The design documents shall be in compliance with the latest version of the A/E/C CADD Standard, available at https://cadbim.usace.army.mil/CAD. The DB Contractor shall use the approved vertical Corps of

Engineers title blocks and borders on all drawings with the appropriate firm name included within the title block area.

3.7.1.6. CAD System and Building Information Modeling (BIM) (NOTE: If this is a Single Award or Multiple Award, Indefinite Delivery/Indefinite Quantity Contract, this information will be provided for each task order.)

All CAD files shall be fully compatible with MicroStation V8 or higher. Save all design CAD files as MicroStation V8 or higher files. All submitted BIM Models and associated Facility Data shall be fully compatible with Bentley BIM file format and the USACE Bentley BIM v8 Workspace.

(a) CAD Data Final File Format: During the design development the contractor shall capture geo-referenced coordinates of all changes made to the existing site (facility footprint, utility line installations and alterations, roads, parking areas, etc) as a result of this contract. There is no mandatory methodology for how the geo-referenced coordinates will be captured, however, Engineering and Construction Bulletin No. 2006-15, Subject: Standardizing Computer Aided Design (CAD) and Geographic Information Systems (GIS) Deliverables for all Military Design and Construction Projects identifies the format for final as-built drawings and data sets to be delivered to the government. Close-out requirements at the as-built stage; require final geo-referenced GIS Database of the new facility along with all exterior modifications. The Government will incorporate this data set into the Installation's GIS Masterplan or Enterprise GIS System. See also, Section 01 78 02.00 10 Closeout Submittals.

(b) Electronic Drawing Files: In addition to the native CAD design files, provide separate electronic drawing files (in editable CAD format and Adobe Acrobat PDF version 7.0 or higher) for each project drawing.

(c) Each file (both CAD and PDF) shall represent one complete drawing from the drawing set, including the date, submittal phase, and border. Each drawing file shall be completely independent of any data in any other file, including fonts and shapes not included with the basic CAD software program utilized. Drawing files with external references or special fonts are not acceptable. All displayed graphic elements on all levels of the drawing files shall be part of the project drawing image. The drawing files shall not contain any graphic element that is not part of the drawing image.

(d) See Attachment F for additional BIM requirements. BIM Model and associated Facility Data files shall be delivered in their native format. At a minimum, BIM files shall address major architecture design elements, major structural components, mechanical systems and electrical/communication distribution and elements as defined in Attachment F. See Attachment F for additional BIM requirements.

(e) Drawing Index: Provide an index of drawings sheet in CAD as part of the drawing set, and an electronic list in Microsoft Excel of all drawings on the CD. Include the electronic file name, the sheet reference number, the sheet number, and the sheet title, containing the data for each drawing.

(f) Hard Copies: Plot submitted hard copy drawings directly from the "electronic drawing files" and copy for quantities and sizes indicated in the distribution list at the end of this specification section. The Designers of Record shall stamp, sign and date original hard copy sheets as Released For Construction, and provide copies for distribution from this set.

3.7.2. Design Analyses

3.7.2.1. The designers of record shall update, finalize and present design analyses with calculations necessary to substantiate and support all design documents submitted.

3.7.2.2. The responsible DOR shall stamp, sign and date the design analysis. Identify the software used where, applicable (name, version, vendor). Generally, provide design analyses, individually, in an original (file copy) and one copy for the assigned government reviewer.

3.7.2.3. All disciplines review the LEED design analysis in conjunction with their discipline-specific design analysis; include a copy of the separable LEED design analysis in all design analysis submittals.

3.7.2.4. Do not combine multi-disciplined volumes of design-analysis, unless multiple copies are provided to facilitate multiple reviewers (one copy per each separate design analysis included in a volume).

3.7.3. Specifications

Specifications shall be 100% complete and in final form.

3.7.4. Submittal Register

The DB Contractor shall prepare and update the Submittal Register and submit it with the 100% design specifications (see Specification Section 01 33 00, SUBMITTAL PROCEDURES) with each design package. Include the required submittals for each specification section in a design package in the submittal register.

3.7.5. Preparation of DD Form 1354 (Transfer of Real Property)

This form itemizes the types, quantities and costs of various equipment and systems that comprise the project, for the purpose of transferring the new construction project from the Corps Construction Division to the Installation's inventory of real property. The Government will furnish the DB Contractor's design manager a DD Form 1354 checklist to use to produce a draft Form 1354. The completed checklist and prepared draft Form DD 1354 shall be submitted with the 100% design in the Design Analysis. The Corps will use these documents to complete the final DD 1354 upon completion of construction.

3.7.6. Acceptance and Release for Construction

3.7.6.1. At the conclusion of the Final Design Review (after resolutions to the comments have been agreed upon between DOR and Government reviewers), the Contracting Officer or the ACO will accept the Final Design Submission for the design package in writing and allow construction to start for that design package. The Government may withhold acceptance until all major corrections have been made or if the final design submission requires so many corrections, even though minor, that it isn't considered acceptably complete.

3.7.6.2. Government review and acceptance of design submittals is for contract conformance only and shall not relieve the Contractor from responsibility to fully adhere to the requirements of the contract, including the Contractor’s accepted contract proposal, or limit the Contractor’s responsibility of design as prescribed under Special Contract Requirement: “Responsibility of the Contractor for Design” or limit the Government’s rights under the terms of the contract. The Government reserves the right to rescind inadvertent acceptance of design submittals containing contract deviations not separately and expressly identified in the submittal for Government consideration and approval.

3.8. DESIGN COMPLETE CONSTRUCTION DOCUMENT REQUIREMENTS

After the Final Design Submission and Review Conference and after Government acceptance of the Final Design submission, the Contractor shall revise the design documents for the design package to incorporate the comments generated and resolved in the final review conference, perform and document a back-check review and submit the final, design complete documents. Label the final design complete documents “FOR CONSTRUCTION” or use similar language. In addition to the final drawings and specifications, the following deliverables are required for distribution and field use. The deliverable includes all documentation and supporting design analysis in final form, as well as the final review comments, disposition and the back-check. As part of the quality assurance process, the Government may perform a back-check of the released for construction documentation. The Contractor shall promptly correct any errors or omissions found during the Government back-check. The Government may withhold retainage from progress payments for work or materials associated with a final design package until this submittal has been received and the Government determines that it is complete.

3.9. SUBMITTAL DISTRIBUTION, MEDIA AND QUANTITIES

3.9.1. Submittal Distribution and Quantities

General: The documents which the Contractor shall submit to the Government for each submittal are listed and generally described in preceding paragraphs in this Section. Provide copies of each design submittal and design substantiation as follows (NOTE: If this is a Single Award or Multiple Award, Indefinite Delivery/Indefinite Quantity Contract, this information will be provided for each task order):

| Activity and Address | Drawing Size (Full Size) **A1** Full Sets/ *Partial Sets | Design Analyses & Specs Full Sets/ *Partial Sets | Drawing Size (Half Size) **A1** Full Sets/ *Partial Sets | Non-BIM Data CD-ROM or DVD as Necessary (PDF& **.dgn**) | Furniture Submittal (FFE) | Structural Interior Design Submittal | BIM Data DVD (Per Attach F) |
|---|---|---|---|---|---|---|---|
| Commander, U.S.Army Engineer District **Louisville District** | 0/0 | 0/0 | 0/0 | 0 | 0 | 0 | 0 |
| Commander, U.S.Army Engineer District, Center of Standardization **Fort Worth** | 0/0 | 0/0 | 0/0 | 0 | 0 | 0 | 0 |
| Installation | 0/0 | 0/0 | 0/0 | 0 | 0 | 0 | 0 |
| U.S.Army Corps of Engineers Construction Area Office | 0/0 | 0/0 | 0/0 | 0 | 0 | 0 | 0 |
| Information Systems Engineering Command (ISEC) | 0/0 | 0/0 | 0/0 | 0 | N/A | N/A | 0 |
| Other Offices | 0/0 | 0/0 | 0/0 | 0 | 0 | 0 | 0 |

***NOTE: For partial sets of drawings, specifications and design analyses, see paragraph 3.9.3.3, below.**

****NOTE: When specified below in 3.9.2, furnish Installation copies of Drawings as paper copies, in lieu of the option to provide secure web-based submittals.**

3.9.2. Web based Design Submittals

Web based design submittals will be acceptable as an alternative to the paper copies listed in the Table above, provided a single hard-copy PDF based record set is provided to the Contracting Officer for record purposes. Where the contract requires the Contractor to submit documents to permitting authorities, still provide those authorities paper copies (or in an alternate format where required by the authority). Web based design submittal information shall be provided with adequate security and availability to allow unlimited access those specifically authorized to Government reviewers while preventing unauthorized access or modification. File sizes must be of manageable size for reviewers to quickly download or open on their computers. As a minimum, drawings shall be full scale on American National Standards Institute (ANSI) D sheets (34" x 22"). In addition to the optional website, provide the BIM data submission on DVD to each activity and address noted above in paragraph 3.9.1 for each BIM submission required in Attachment F.

3.9.3. Mailing of Design Submittals

3.9.3.1. Mail all design submittals to the Government during design and construction, using an overnight mailing service. The Government will furnish the Contractor addresses where each copy shall be mailed to after award of the contract (or individual task order if this is an indefinite delivery/indefinite quantity, task order contract). Mail the submittals to four (4) different addresses. Assemble drawing sheets, specs, design analyses, etc. into individual sets; do not combine duplicate pages from individual sets so that the government has to assemble a set.

3.9.3.2. Each design submittal shall have a transmittal letter accompanying it indicating the date, design percentage, type of submittal, list of items submitted, transmittal number and point of contact with telephone number.

3.9.3.3. Provide partial sets of drawings, specifications, design analyses, etc., as designated in the Table in paragraph 3.9.1, to those reviewers who only need to review their applicable portions of the design, such as the various utilities. The details of which office receives what portion of the design documentation will be worked out after award.

3.10. AS-BUILT DOCUMENTS

Provide as-built drawings and specifications in accordance with Section 01 78 02.00 10, CLOSEOUT SUBMITTALS. Update LEED design phase documentation during construction as needed to reflect construction changes and advancing project completion status (example - Commissioning Plan updates during construction phase) and include updated LEED documentation in construction closeout submittal.

**ATTACHMENT A**
**STRUCTURAL INTERIOR DESIGN (SID) REQUIREMENTS**

## 1.0 GENERAL INFORMATION

Structural Interior Design includes all building related elements and components generally part of the building itself, such as wall finishes, ceilings finishes, floor coverings, marker/bulletin boards, blinds, signage and built in casework. Develop the SID in conjunction with the furniture footprint.

## 2.0 STRUCURAL INTERIOR DESIGN (SID) REQUIREMENTS FOR THE INTERIM AND FINAL DESIGN SUBMITTALS

### 2.1. FORMAT AND SCHEDULE

Prepare and submit for approval an interior and exterior building finishes scheme for an interim design submittal. The DOR shall meet with and discuss the finish schemes with the appropriate Government officials prior to preparation of the schemes to be presented. Present original sets of the schemes to reviewers at an interim design conference.

At the conclusion of the interim phase, after resolutions to the comments have been agreed upon between DOR and Government reviewers, the Contractor may proceed to final design with the interior finishes scheme presented.

The SID information and samples are to be submitted in 8 ½" x 11" format using three ring binders with pockets on the inside of the cover. When there are numerous pages with thick samples, use more than one binder. Large D-ring binders are preferred to O-ring binders. Use page protectors that are strong enough to keep pages from tearing out. Anchor large or heavy samples with mechanical fasteners, Velcro, or double-faced foam tape rather than rubber cement or glue. Fold out items must have a maximum spread of 25 ½". Provide cover and spine inserts sheets identifying the document as "Structural Interior Design" package. Include the project title and location, project number, Contractor/A/E name and phone number(s), submittal stage and date.

Design submittal requirements include, but are not limited to:

#### 2.1.1. Narrative of the Structural Interior Design Objectives

The SID shall include a narrative that discusses the building related finishes. Include topics that relate to base standards, life safety, sustainable design issues, aesthetics, durability and maintainability, discuss the development and features as they relate to the occupants requirements and the building design.

#### 2.1.2. Interior Color Boards

Identify and key each item item on the color boards to the contract documents to provide a clear indication of how and where each item will be used. Arrange finish samples to the maximum extent possible by room type in order to illustrate room color coordination. Label all samples on the color boards with the manufacturer's name, patterns and colors name and number. Key or code samples to match key code system used on contract drawings.

Material and finish samples shall indicate true pattern, color and texture. Provide photographs or colored photocopies of materials or fabrics to show large overall patterns in conjunction with actual samples to show the actual colors. Finish samples must be large enough to show a complete pattern or design where practical.

Color boards shall include but not be limited to original color samples of the following:

All walls finishes and ceiling finishes, including corner guards, acrylic wainscoting and wall guards/chair rail finishes

All tile information, including tile grout color and tile patterns.

- All flooring finishes, including patterns.
- All door, door frame finishes and door hardware finishes
- All signage, wall base, toilet partitions, locker finishes and operable/folding partitions and trim

- All millwork materials and finishes (cabinets, counter tops, etc.)
- All window frame finishes and window treatments (sills, blinds, etc.)

Color board samples shall reflect all actual finish textures, patterns and colors required as specified. Patterned samples shall be of sufficient size to adequately show pattern and its repeat if a repeat occurs.

2.1.3. Exterior Color Boards

Prepare exterior finishes color boards in similar format as the interior finishes color boards, for presentation to the reviewers during an interim design conference. Provide original color samples of all exterior finishes including but not limited to the following:

- All Roof Finishes
- All Brick and Cast Stone Samples
- All Exterior Insulation and Finish Samples
- All Glass Color Samples
- All Exterior Metals Finishes
- All Window & Door Frame Finishes
- All Specialty Item Finishes, including trim

Identify each item on the exterior finishes color boards and key to the building elevations to provide a clear indication of how and where each item will be used.

2.2. STRUCTURAL INTERIOR DESIGN DOCUMENTS

2.2.1. General

Structural interior design related drawings must indicate the placement of extents of SID material, finishes and colors and must be sufficiently detailed to define all interior work. The following is a list of minimum requirements:

2.2.2. Finish Color Schedule

Provide finish color schedule(s) in the contract documents. Provide a finish code, material type, manufacturer, series, and color designations. Key the finish code to the color board samples and drawings.

2.2.3. Interior Finish Plans

Indicate wall and floor patterns and color placement, material transitions and extents of interior finishes.

2.2.4. Furniture Footprint Plans

Provide furniture footprint plans showing the outline of all freestanding and systems furniture for coordination of all other disciplines.

2.2.5. Interior Signage

Include interior signage plans or schedules showing location and quantities of all interior signage. Key each interior sign to a quantitative list indicating size, quantity of each type and signage text.

2.2.6. Interior Elevations, Sections and Details

Indicate material, color and finish placement.

**ATTACHMENT B**
**FURNITURE, FIXTURES & EQUIPMENT (FF&E) REQUIREMENTS**

## 1.0 FF&E REQUIREMENTS FOR THE INTERIM AND FINAL DESIGN SUBMITTALS

1.1. NOT USED

1.2. NOT USED

1.3. FURNITURE SELECTION

1.3.1. Select furniture from the GSA Schedules. Specify furniture available open market when an item is not available on the GSA Schedules. Provide justification fort items not available on the GSA Schedules.

1.3.2. To the greatest extent possible when specifying furniture work within a manufacturer's family of furniture for selections, example: Steelcase, Turnstone, Brayton International, Metro, and Vecta are all Steelcase companies. Each alternate should also be specified from a manufacturer's family of furniture, example: first set of alternates would be specified from Knoll's family of furniture and the second from Herman Miller family of furniture. It may be necessary to make some selections from other than a manufacturer's family of furniture if costs are not reasonable for particular items, some items are not available or appropriate for the facility or the items are not on GSA Schedule. If this occurs, consider specifying product from an open line that is accessible by numerous dealerships. Select office furniture including case goods, tables, storage, seating, etc. that is compatible in style, finish and color. Select furniture that complies with ANSI/BIFMA and from manufacturer's standard product line as shown in the most recent published price list and/or amendment and not custom product.

1.4. CONSTRUCTION

1.4.1. Provide knee space at workstations and tables that is not obstructed by panels/legs that interfere with knee space of seated person and provide desks, storage and tables with leveling devices to compensate for uneven floors.

1.4.2. Provide worksurface tops constructed to prevent warpage. Provide user friendly features such as radius edges. Do not use sharp edges and exposed connections and ensure the underside of desks, tables and worksurfaces are completely and smoothly finished. Provide abutting worksurfaces that mate closely and are of equal heights when used in side-by-side configurations in order to provide a continuous and level worksurface.

1.4.3. Drawers shall stay securely closed when in the closed position and protect wires from damage during drawer operation. Include a safety catch to prevent accidental removal when fully open

1.5. FINISHES AND UPHOLSTERY

1.5.1. Specify neutral colors for casegoods, furniture systems, storage and tables. Specify desk worksurfaces and table tops that are not too light or too dark in color and have a pattern to help hide soiling. Accent colors are allowed in break and lounge areas. Keep placement of furniture systems panel fabric accent colors to a minimum. All finishes shall be cleanable with ordinary household cleaning solutions.

1.5.2. Use manufacturer's standard fabrics; including textile manufacturers fabrics that have been graded into the furniture manufactures fabric grades and are available through their GSA Schedule. Customers Own Material (COM) can be used in headquarter buildings in command suites with executive furniture. Coordinate specific locations with Corps of Engineers Interior Designer.

1.5.3. Specify seating upholstery that meets Wyzenbeek Abrasion Test, 55,000 minimum rubs. Specify a soil retardant finish for woven fabrics if Crypton or vinyl upholstery is not provided for seating in dining areas. Use manufacturer's standard fabrics. This includes textile manufacturers fabrics that have been graded into the furniture manufactures fabric grades and are available through their GSA Schedule. Specify upholstery and finish colors and patterns that help hide soiling. Specify finishes that can be cleaned with ordinary household cleaning solutions.

1.6. ACCESSORIES

1.6.1. Specify all accessories required for completely finished furniture installation. Provide filing cabinets and storage for office supplies. Provide tack surfaces at workstations with overhead storage. Provide tackable surfaces at workstations with overhead storage.

1.6.2. Specify lockable desks and workstations and storage of steel construction. Use tempered glass glazing when glazing is required.

1.6.3. Workstations are to be equipped with stable keyboard trays that have height adjustability, tilting capability, including negative tilt, have a mouse pad at same height as the keyboard tray that can accommodate both left and right handed users, and retractable under worksurface.

1.7. MISSION UNIQUE EQUIPMENT

Funding for FF&E furniture items and mission unique equipment (MUE) items are from two different sources. Separate the designs and procurement documentation for FFE items and MUE. MUE includes, but is not limited to, items such as industrial shelving, workbenches, appliances, fitness equipment, IT equipment and supporting carts. The User will purchase and install mission unique equipment items, unless otherwise noted. Identify locations of known MUE items such as industrial shelving, workbenches, appliances, etc. for space planning purposes.

1.8. SUSTAINABILITY

1.8.1. For all designs provided regardless of facility type, make every effort to implement all aspects of sustainability to the greatest extent possible for all the selections made in the FF&E package. This includes but is not limited to the selection of products that consider: **Material Chemistry and Safety of Inputs** (What chemicals are used in the construction of the selections?); **Recyclability** (Do the selections contain recycled content?); **Disassembly** (Can the selections be disassembled at the end of their useful life to recycle their materials?).

1.8.2. Make selections to the greatest extent possible of products that possess current McDonough Braungart Design Chemistry (MBDC) certification or other “third-party” certified Cradle to Cradle program, Forest Stewardship Council (FSC) certification, GREENGAURD certification or similar “third-party” certified products consisting of low-emitting materials.

1.9. FURNITURE SYSTEMS

1.9.1. General.

Where appropriate, design furniture systems in open office areas. Coordinate style and color of furniture systems with other storage, seating, etc. in open office areas. Minimize the number of workstation typicals and the parts and pieces required for the design to assist in future reconfiguration and inventorying.

1.9.2. Connector Systems.

Specify a connector system that allows removal of a single panel or spine wall within a typical workstation configuration without requiring disassembly of the workstation or removal of adjacent panels. Specify connector system with tight connections and continuous visual seals. When Acoustical panels are used, provide connector system with continuous acoustical seals. Specify concealed clips, screws, and other construction elements, where possible.

1.9.3. Panels and Spine Walls

Specify panels and spine walls with hinged or removable covers that permit easy access to the raceway when required but are securely mounted and cannot be accidentally dislodged under normal conditions. Panels shall be capable of structurally supporting more than 1 fully loaded component per panel per side. Raceways are to be an integral part of the panel and must be able to support lay-in cabling and have a large capacity for electrical and IT. Do not thread cables through the frame.

1.9.4. Electrical And Information/Technology (IT)

Design furniture with electrical systems that meets requirements of UL 1286 when powered panels are required and UL approved task lights that meet requirements of NFPA 70. Dependent on user requirements and Section 01 10 00, paragraph 3 requirements, it is recommended that workstation electrical and IT wiring entry come from the building walls to eliminate the use of power poles and access at the floor. Design electrical and IT systems that are easily accessed in the spine wall and panels without having to move return panels and components. Electrical and IT management will be easily accessible by removable wall covers which can be removed while workstation components are still attached. Specify connector system that has continuation of electrical and IT wiring within workstations and workstation to workstation.

1.9.5. Pedestals

Specify pedestals that are interchangeable from left to right, and right to left, and retain pedestal locking system capability.

1.10. EXECUTIVE FURNITURE

1.10.1. Design for executive furniture in command areas, coordinate specific locations with Corps of Engineers Interior Designer. Use upgraded furniture, upholsteries and finishes in command suites. This includes but is not limited to wood casegoods, seating and tables. Select executive furniture casegoods from a single manufacturer and style line, to include workstations, credenzas, filing, and storage, etc.

1.10.2. Specify furniture with wood veneer finish (except worksurfaces) with mitered solid wood edge of same wood type. Provide worksurface plastic laminate that closely matches adjacent wood veneer. Other executive office furniture such as seating, tables, executive conference room furniture, etc. shall be compatible in style, finish and color with executive furniture casegoods.

1.11. SEATING

1.11.1. General

Specify appropriate chair casters and glides for the floor finish where the seating is located. Universal casters that are appropriate for both hard surface flooring and carpet are preferred. All seating shall support up to a minimum of 250 lbs.

1.11.2. Desk and Guest Seating

Select ergonomic desk chairs with casters, non-upholstered adjustable arms, waterfall front, swivel, tilt, variable back lock, adjustable back height or adjustable lumbar support, pneumatic seat height adjustment, and padded, contoured upholstered seat and back. Desk and guest chair backs may be other than upholstered such as mesh fabric if it is ergonomically designed, forms to back and is comfortable. Depending on scale of desk chair provide seat pan forward and back adjustment to increase or decrease depth of seat pan. All desk chairs shall have an adjustable seat height range of 4 1/2", range to include 16 1/2-20". Select guest chairs that are compatible in style, finish and color with the desk chairs.

1.11.3. Conference Room Seating

At tables, select ergonomic conference seating with casters, non-upholstered arms, waterfall front, swivel, tilt, pneumatic seat height adjustment, and padded, contoured seat and back, unless otherwise noted. Select arm height and/or design that allows seating to be moved up closely to the table top. Conference chair backs may be other than upholstered such as mesh fabric if it is ergonomically designed, forms to back and is comfortable. Perimeter conference chairs shall be compatible in style, finish and color with conference seating at the tables.

1.11.4. Lounge, Waiting and Reception Area Seating

Select seating with arms and cushioned, upholstered seat and back. In heavy use areas, arms shall be easily cleaned such as non-upholstered arms or upholstered arms with wood arm caps unless otherwise noted.

1.11.5. Break Room Seating

Select stackable seating that is easily cleaned. Seating shall be appropriate for table and counter heights as applicable with non-upholstered arms if arms are required. Chairs shall have metal legs and composite materials for seats.

1.11.6. Lounge, Waiting and Reception Furniture.

Design for end and coffee tables with plastic laminate tops that are compatible in style finish and color with the seating.

1.12. FILING AND STORAGE.

Select storage and shelving units that meet customer's functional load requirements for stored items. Specify counterweights for filing cabinets when required by the manufacturer for stability. File drawers shall allow only one drawer to be opened at a time. Provide heavy duty storage and shelving if information is not available.

1.13. TRAINING TABLES.

Don't use plastic laminate self edge. Training tables shall be reconfigurable, moveable and storable; lighter weight folding with dollies or castered as necessary. Specify dollies if required.

1.14. FURNITURE WARRANTIES.

Specify manufacturer's performance guarantees or warranties that include parts, labor and transportation as follows:

Furniture System, unless otherwise noted – 10 year minimum
Furniture System Task Lights – 2 year minimum, excluding bulbs
Furniture System Fabric – 3 year minimum
Desks - 10 year minimum
Seating, unless otherwise noted - 10 year minimum
Seating Mechanisms and Pneumatic Cylinders - 10 years
Fabric - 3 years minimum
Filing and Storage - 10 year minimum
Tables, unless otherwise noted - 10 year minimum
Table Mechanisms – 5 year
Table Ganging Device - 1 year
Items not listed above - 1 year minimum

# ATTACHMENT C
# TRACKING COMMENTS IN DRCHECKS

## 1.0 General

The Government and DB Contractor shall set up the project in Dr Checks. Throughout the design process, the parties shall enter, track, and back-check comments using the DrChecks system. Government reviewers enter design review comments into DrChecks. Designers of Record shall annotate comments timely and specifically to indicate exactly what action will be taken or why the action is not required. Comments considered critical by the conference participants shall be flagged as such.

## 2.0 DrChecks Review Comments

The DB Contractor and the Government shall monitor DrChecks to assure all comments are annotated and agreed to by the designers and reviewers prior to the next submittal. The DrChecks comments and responses shall be printed and included in the design analysis for record.

2.1. Conference participants (reviewers) will expect coordination between Design Analysis calculations and the submitted design. Reviewers will also focus on the design submittal's satisfaction of the contract requirements.

2.2. The Designers of Record shall answer each comment in DrChecks with a formal response prior to the next submittal, clearly indicating what action will be taken and what drawing/spec will change. Designers of Record are encouraged to directly contact reviewers to discuss and agree to the formal comment responses rather than relying only on DrChecks and review meetings to discuss comments. With the next design conference, reviewers will back-check answers to the comments against the submittal, in addition to reviewing additional design work.

2.3. Comments that, in the DB Contractor's opinion, require effort outside the scope of the contract shall be clearly indicated as such in DrChecks. The DB Contractor shall not proceed with work outside the contract until a modification to the contract is properly executed, if one is necessary.

## 3.0 DrChecks Initial Account Set-Up

To initialize an office's use of DrChecks, choose a contact person within the office to call the DrChecks Help Desk at 800-428-HELP, M-F, 8AM-5PM, Central time. This POC will be given an office password to distribute to others in the office. Individuals can then go to the hyperlink at http://www.projnet.org and register as a first time user. Upon registration, each user will be given a personal password to the DrChecks system.

3.1. Once the office and individuals are registered, the COE's project manager or lead reviewer will assign the individuals and/or offices to the specific project for review. At this point, persons assigned can make comments, annotate comments, and close comments, depending on their particular assignment.

## 4.0 DrChecks Reviewer Role

The DB Contractor is the technical reviewer and the Government is the compliance reviewer of the DB designers design documents. Each reviewer enters their own comments into the Dr Checks system. To enter comments:

4.1. Log into DrChecks.

4.2. Click on the appropriate project.

4.3. Click on the appropriate review conference. An Add comment screen will appear.

4.4. Select or fill out the appropriate sections (particularly comment discipline and type of document for sorting) of the comment form and enter the comment in the space provided.

4.5. Click the Add Comment button. The comment will be added to the database and a fresh screen will appear for the next comment you have.

4.6. Once comments are all entered, exit DrChecks by choosing “My Account” and then Logout.

**5.0 DrChecks Comment Evaluation**

The role of the designers of record is to evaluate and respond to the comments entered by the Government reviewers and by the DB Contractor. To respond to comments:

5.1. Log into DrChecks.

5.2. Click on the appropriate project.

5.3. Under “Evaluate” click on the number under “Pending”.

5.4. Locate the comments that require your evaluation. (Note: If you know the comment number you can use the Quick Pick window on your home page in DrChecks; enter the number and click on go.)

5.5. Select the appropriate evaluation (concur, non-concur, for information only, or check and resolve) and add the response.

5.6. Click on the Add button. The evaluation will be added to the database and a fresh screen will appear with the next comment.

5.7. Once evaluations are all entered, exit DrChecks by choosing “My Account” and then Logout.

**6.0 DrChecks Back-check**

At the following design conference, participants will back-check comment annotations against newly presented documents to verify that the designers' responses are acceptable and completed. The DB Contractor and Government reviewers shall either enter additional back-check comments, as necessary or close those that are resolved as a result of the design conferences:

6.1. Log into DrChecks.

6.2. Click on the appropriate project.

6.3. Under “My Backcheck” click on the number under “Pending”.

6.4. If you agree with the designer’s response select “Close Comment” and add a closing response if desired.

6.5. If you do not agree with the designer’s response or the submittal does not reflect the response given, select “Issue Open”, enter additional information.

6.6. Click on the Add button. The back-check will be added to the database and a fresh screen will appear with the next comment.

6.7. Once back-checks are all entered, exit DrChecks by choosing “My Account” and then Logout. The design is completed and final when there are no pending comments to be evaluated and there are no pending or open comments under back-check.

**ATTACHMENT D**
**SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW**

Instructions: The information outlined in this document shall be used to provide the minimum requirement for development of Fire Protection and Life Safety Code submittals for all building projects. Additional and supplemental information may be used to further develop the code review. Insert N/A after criteria, which may be "not applicable".

## 1.0 SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW

1.1. Project Name (insert name and location)

1.2. Applicable Codes and Standards

1.2.1. Unified Facilities Criteria (UFC): 3-600-01, Design: Fire Protection Engineering For Facilities

1.2.2. International Building Code (IBC) for fire resistance requirements, allowable floor area, building height limitations and building separation distance requirements, except as modified by UFC 3-600-01.

1.2.3. National Fire Protection Association (NFPA) 101 Life Safety Code (latest edition), for building egress and life safety and applicable criteria in UFC 3-600-01.

1.2.4. ADA and ABA Accessiblity Guidelines. For Buildings and Facilities See Section 01 10 00, Paragraph 3 for facility specific criteria.

1.3. Occupancy Classification
IBC chapters 3 and 4

1.4. Construction Type
IBC chapter 6

1.5. Area Limitations
IBC chapter 5, table 503

1.6. Allowable Floor Areas
IBC section 503, 505

1.7. Allowable area increases
IBC section 506, 507

1.8. Maximum Height of Buildings
IBC section 504

1.9. Fire-resistive substitution

1.10. Occupancy Separations
IBC table 302.3.2

1.11. Fire Resistive Requirements

1.11.1. Exterior Walls - [_____] hour rating, IBC table 601, 602

1.11.2. Interior Bearing walls - [_____] hour rating

1.11.3. Structural frame - [_____] hour rating

1.11.4. Permanent partitions - [_____] hour rating

1.11.5. Shaft enclosures - [_____] hour rating

1.11.6. Floors & Floor-Ceilings - [_____] hour rating

1.11.7. Roofs and Roof Ceilings - [_____] hour rating

1.12. Automatic Sprinklers and others used to determine the need for automatic Extinguishing Equipment, Extinguishing Systems, Foam Systems, Standpipe

1.12.1. UFC 3-600-01, chapters 4 and 6 systems, wet chemical systems, etc. State which systems are required and to what criteria they will be designed.

1.12.2. UFC 3-600-01, Appendix B Occupancy Classification. Note the classification for each room. This may be accomplished by classifying the entire building and noting exceptions for rooms that differ (E.g. The entire building is Light Hazard except boiler room and storage rooms which are [_____], etc.)

1.12.3. UFC 3-600-01, Chapter 3 Sprinkler Design Density, Sprinkler Design Area, Water Demand for Hose Streams (supply pressure and source requirements).

1.12.4. UFC 3-600-01, Chapter 4 Coverage per sprinkler head. Extended coverage sprinkler heads are not permitted.

1.12.5. Available Water Supply. Provide the results of the water flow tests showing the available water supply static pressure and residual pressure at flow. Based on this data and the estimated flow and pressure required for the sprinkler system, determine the need for a fire pump.

1.12.6. NFPA 13, Para. 8.16.4.6.1. Provide backflow preventer valves as required by the local municipality, authority, or water purveyor. Provide a test valve located downstream of the backflow preventer for flow testing the backflow preventer at full system demand flow. Route the discharge to an appropriate location outside the building.

1.13. Kitchen Cooking Exhaust Equipment

Describe when kitchen cooking exhaust equipment is provided for the project. Type of extinguishing systems for the equipment should be provided. per NFPA 96. Show all interlocks with manual release switches, fuel shutoff valves, electrical shunt trips, exhaust fans, and building alarms.

1.14. Portable Fire Extinguishers, fire classification and travel distance. per NFPA 10

1.15. Enclosure Protection and Penetration Requirements. - Opening Protectives and Through Penetrations

1.15.1. IBC Section712, 715 and Table 715.3. Mechanical rooms, exit stairways, storage rooms, janitor [_____] hour rating. IBC Table 302.1.1

1.15.2. Fire Blocks, Draft Stops, Through Penetrations and Opening Protectives

1.16. Fire Dampers. Describe where fire dampers and smoke dampers are to be used (IBC Section 716 and NFPA 90A}. State whether isolation smoke dampers are required at the air handler.

1.17. Detection Alarm and Communication. UFC 3-600-01, (Chapter 5); NFPA 101 para. 3.4 (chapters 12-42); NFPA 72

1.18. Mass Notification. Describe building/facility mass notification system (UFC 4-021-01) type and type of base-wide mass notification/communication system. State whether the visible notification appliances will be combined with the fire alarm system or kept separate. (Note: Navy has taken position to combine visible notification appliances with fire alarm).

1.19. Interior Finishes (classification). NFPA 101.10.2.3 and NFPA 101.7.1.4

1.20. Means of Egress

1.20.1. Separation of Means of Egress, NFPA 101 chapters 7 and 12-42; NFPA101.7.1.3

1.20.2. Occupant Load, NFPA101.7.3.1 and chapters 12-42.

1.20.3. Egress Capacity (stairs, corridors, ramps and doors) NFPA101.7.3.3

1.20.4. Number of Means of Egress, NFPA101.7.4 and chapters 12-42.

1.20.5. Dead end limits and Common Path of Travel, NFPA 101.7.5.1.6 and chapters 12-42.

1.20.6. Accessible Means of Egress (for accessible buildings), NFPA101.7.5.4

1.20.7. Measurement of Travel Distance to Exits, NFPA101.7.6 and chapters 12-42.

1.20.8. Discharge from Exits, NFPA101.7.7.2

1.20.9. Illumination of Means of Egress, NFPA101.7.8

1.20.10. Emergency Lighting, NFPA101.7.9

1.20.11. Marking of Means of Egress, NFPA101.7.10

1.21. Elevators, UFC 3-600-01, Chapter 6; IBC and ASME A17.1 - 2000,(Safety Code for Elevators and Escalators)

1.22. Accessibility Requirements, ADA and ABA Accessibility Guidelines for Buildings and Facilities

1.23. Certification of Fire Protection and Life Safety Code Requirements. (Note: Edit the Fire team membership if necessary). Preparers of this document certify the accuracy and completeness of the Fire Protection and Life Safety features for this project in accordance with the attached completed form(s).

1.24. Designer of Record. Certification of Fire protection and Life Safety Code Requirements. (Note: Edit the Fire team members if necessary). Preparers of this document certify the accuracy and completeness of the Fire Protection and Life Safety features of this project.

Fire Protection Engineer of Record:

_____

Signature and Stamp

Date

OR

Architect of Record:

_____

Signature and Stamp

Date

Mechanical Engineer of Record:

_____

Signature and Stamp

Date

Electrical Engineer of Record:

_____

Signature/Date

**ATTACHMENT E**
**LEED SUBMITTALS**

| LEED Credit Paragraph | Contractor Check Here if Credit is Claimed | **LEED-NC v2.2 Submittals (OCT09REV)** | | Provide for Credit Audit Only | | Date Submitted (to be filled in by Contractor) | Government Reviewer's Use (OCT09REV) |
|---|---|---|---|---|---|---|---|
| **PAR** | | **FEATURE** | **DUE AT** | | **REQUIRED DOCUMENTATION** | **DATE** | **REV** |
| **GENERAL** | | | | | | | |
| | GENERAL - All calculations shall be in accordance with LEED 2.2 Reference Guide. | | | | | | |
| | GENERAL: Obtain excel version of this spreadsheet at http://en.sas.usace.army.mil/enWeb, "Engineering Criteria". OCT09REV | | | | | | |
| | GENERAL - For all credits, narrative/comments may be added to describe special circumstances or considerations regarding the project's credit approach. | | | | | | |
| | GENERAL - Include all required LEED drawings indicated below in contract drawings with applicable discipline drawings, labeled For Reference Only. | | | | | | |
| | NOTE: Each submittal indicated with "**" differs from LEED certified project submittals by either having a different due date or being an added submittal not required by GBCI. OCT09REV | | | | | | |
| | OCT09REV GENERAL - Audit documentation may include but is not limited to what is indicated in this table. | | | | | | |
| | | | Closeout | | List of all Final Design submittals revised after final design to reflect actual closeout conditions. Revised Final Design submittals. - OR - Statement confirming that no changes have been made since final design that effect final design submittal documents. | | Proj Engr (PE) |
| **CATEGORY 1 - SUSTAINABLE SITES** | | | | | | | |
| SSPR1 | | Construction Activity Pollution Prevention (PREREQUISITE) | **Final Design | | List of drawings and specifications that address the erosion control, particulate/dust control and sedimentation control measures to be implemented. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | **Final Design | | Narrative that indicates which compliance path was used (NPDES or Local standards) and describes the measures to be implemented on the project. If a local standard was followed, provide specific information to demonstrate that the local standard is equal to or more stringent than the NPDES program. | | CIV |
| SS1 | | Site Selection | Final Design | | Statement confirming that project does not meet any of the prohibited criteria. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | X | LEED Site plan drawing that shows all proposed development, line depicting boundary of all bodies of water and/or wetlands within 100 feet of project boundary and a line depicting 5' elevation above 100 year flood line that falls within project boundary. Not required if neither condition applies. | | CIV |
| SS2 | | Development Density & Community Connectivity | Final Design | | Option 1: LEED Site vicinity plan showing project site and surrounding development. Show density boundary or note drawing scale. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Option 1: Table indicating, for project site and all surrounding sites within density radius (keyed to site vicinity plan), site area and building area. Project development density calculation. Density radius calculation. Development density calculation within density radius. | | CIV |
| | | | Final Design | | Option 2: LEED Site vicinity plan showing project site, the 1/2 mile community radius, pedestrian walkways and the locations of the residential development(s) and Basic Services surrounding the project site. | | CIV |
| | | | Final Design | | Option 2: List (including business name and type) of all Basic Services facilities within the 1/2 mile radius, keyed to site vicinity plan. | | CIV |
| SS3 | | Brownfield Redevelopment | Final Design | | Narrative describing contamination and the remediation activities included in project. Include statement indicating how site was determined to be a brownfield. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| SS4.1 | | Alternative Transportation: Public Transportation Access | Final Design | | Statement indicating which option for compliance applies. State whether public transportation is existing or proposed and, if proposed, cite source of this information. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Option 1: LEED Site vicinity plan showing project site, mass transit stops and pedestrian path to them with path distance noted. | | CIV |
| | | | Final Design | | Option 2: LEED Site vicinity plan showing project site, bus stops and pedestrian path to them with path distance noted. | | CIV |
| | | | | | | | |
| SS4.2 | | Alternative Transportation: Bicycle Storage & Changing Rooms | Final Design | | FTE calculation. Bicycle storage spaces calculation. Shower/changing facilities calculation. | | CIV |
| | | | Final Design | | List of drawings that show the location(s) of bicycle storage areas. Statement indicating distance from building entrance. | | CIV |
| | | | Final Design | | List of drawings that show the location(s) of shower/changing facilities and, if located outside the buiding, statement indicating distance from building entrance. | | ARC |
| | | | | | | | |
| SS4.3 | | Alternative Transportation: Low Emitting & Fuel Efficient Vehicles | Final Design | | Statement indicating which option for compliance applies. FTE calculation. Statement indicating total parking capacity of site. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Option 1: Low-emission & fuel-efficient vehicle calculation. | | CIV |

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|---|---|---|---|---|---|---|---|
| **PAR** | | **FEATURE** | **DUE AT** | | **REQUIRED DOCUMENTATION** | **DATE** | **REV** |
| | | | Final Design | | Option 1: List of drawings and specification references that show location and number of preferred parking spaces for low-emission & fuel-efficient vehicles and signage. | | CIV |
| | | | Final Design | | Option 1: Statement indicating quantity, make, model and manufacturer of low-emission & fuel-efficient vehicles to be provided. Statement confirming vehicles are zero-emission or indicating ACEEE vehicle scores. | | CIV |
| | | | Final Design | | Option 2: Low-emission & fuel-efficient vehicle parking calculation. | | CIV |
| | | | Final Design | | Option 2: List of drawings and specification references that show location and number of preferred parking spaces and signage. | | CIV |
| | | | Final Design | | Option 3: Low-emission & fuel-efficient vehicle refueling station calculation. | | CIV |
| | | | Final Design | | Option 3: List of drawings and specifications indicating location and number of refueling stations, fuel type and fueling capacity for each station for an 8-hour period. | | CIV |
| | | | Closeout | X | Option 3: Construction product submittals indicating what was provided and confirming compliance with respect to fuel type and fueling capacity for each station for an 8-hour period. | | CIV |
| | | | | | | | |
| SS4.4 | | Alternative Transportation: Parking Capacity | Final Design | | Statement indicating which option for compliance applies. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Option 1: Preferred parking calculation including number of spaces required, total provided, preferred spaces provided and percentage. | | CIV |
| | | | Final Design | | Option 2: FTE calculation. Preferred parking calculation including number of spaces provided, preferred spaces provided and percentage. | | CIV |
| | | | Final Design | | Options 1 and 2: List of drawings and specification references that show location and number of preferred parking spaces and signage. | | CIV |
| | | | Final Design | | Option 3: Narrative indicating number of spaces required and provided and describing infrastructure and support programs with description of project features to support them. | | CIV |
| | | | | | | | |
| SS5.1 | | Site Development: Protect or Restore Habitat | **Final Design | | Option 1: List of drawing and specification references that convey site disturbance limits. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | **Final Design | | Option 2: LEED site plan drawing that delineates boundaries of each preserved and restored habitat area with area (sf) noted for each. | | CIV |
| | | | **Final Design | | Option 2: Percentage calculation of restored/preserved habitat to total site area. List of drawings and specification references that convey restoration planting requirements. | | CIV |
| | | | | | | | |
| SS5.2 | | Site Development: Maximize Open Space | Final Design | | Option 2: LEED site plan drawing delineating boundary of vegetated open space adjacent to building with areas of building footprint and designated open space noted. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | | | | | |
| SS6.1 | | Stormwater Design: Quantity Control | Final Design | | Statement indicating which option for compliance applies. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Option 1: Indicate pre-development and post-development runoff rate(cfs) and runoff quantity (cf) -OR - Narrative describing site conditions, measures and controls to be implemented to prevent excessive stream velocities and erosion. | | CIV |
| | | | Final Design | | Option 2: Indicate pre-development and post-development runoff rate(cfs) and runoff quantity (cf). Indicate percent reduction in each. | | CIV |
| | | | | | | | |
| SS6.2 | | Stormwater Design: Quality Control | Final Design | | For non-structural controls, list all BMPs used and, for each, describe the function of the BMP and indicate the percent annual rainfall treated. List all structural controls and, for each, describe the pollutant removal and indicate the percent annual rainfall treated. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | | | | | |
| SS7.1 | | Heat Island Effect: Non-Roof | **Final Design | | LEED site plan drawing indicating locations and quantities of each paving type, including areas of shaded pavement. Percentage calculation indicating percentage of reflective/shaded/open grid area. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | | | | | |
| SS7.2 | | Heat Island Effect: Roof | Final Design | | Option 1: Percentage calculation indicating percentage of SRI compliant roof area. List of drawings and specification references that convey SRI requirements and roof slopes. | | ARC |

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|---|---|---|---|---|---|---|---|
| **PAR** | | **FEATURE** | **DUE AT** | | **REQUIRED DOCUMENTATION** | **DATE** | **REV** |
| | | | Final Design OCT09REV | | Option 1: List of specified roof materials indicating, for each, product type, manufacturer, product name and identification if known, SRI value and roof slope. OCT09REV | | ARC |
| | | | **Closeout OCT09REV | | Option 1: List of installed roof materials indicating, for each, manufacturer, product name and identification, SRI value and roof slope. | | PE |
| | | | Closeout | X | Option 1: Manufacturer published product data or certification confirming SRI | | PE |
| | | | Final Design | | Option 2: Percentage calculation indicating percentage of vegetated roof area. | | ARC |
| | | | Final Design | | Option 3: Combined reflective and green roof calculation. | | ARC |
| | | | Final Design OCT09REV | | Option 3: List of specified roof materials indicating, for each, product type, manufacturer, product name and identification if known, SRI value and roof slope. OCT09REV | | |
| | | | **Closeout OCT09REV | | Option 3: List of installed roof materials indicating, for each, manufacturer, product name and identification, SRI value and roof slope. | | PE |
| | | | Closeout | X | Option 3: Manufacturer published product data or certification confirming SRI | | PE |
| | | | | | | | |
| SS8 | | Light Pollution Reduction | Final Design | | Interior Lighting: List of drawings and specification references that convey interior lighting requirements (location and type of all installed interior lighting, location of non-opaque exterior envelope surfaces, allowing confirmation that maximum candela value from interiorfixtures does not intersect non-opaque building envelope surfaces). - OR - List of drawings and specification references that show automatic lighting controls that turn off non-essential lighting during non-business hours. | | ELEC |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | ELEC |
| | | | Final Design | | Exterior Lighting: List of drawings and specification references that convey exterior lighting requirements (location and type of all site lighting and building façade/landscape lighting). | | ELEC |
| | | | Final Design | | Exterior Site Lighting Power Density (LPD): Tabulation for exterior site lighting indicating, for each location identification or description, units of measure, area or distance of the location, actual LPD using units consistent with ASHRAE 90.1, and the ASHRAE allowable LPD for that type of location. Percentage calculation of actual versus allowable LPD for all site lighting. | | ELEC |
| | | | Final Design | | Exterior Building Facade/Landscape Lighting Power Density (LPD): Tabulation for exterior building facade/landscape lighting indicating, for each location identification or description, units of measure, area or distance of the location, actual LPD using units consistent with ASHRAE 90.1, and the ASHRAE allowable LPD for that type of location. Percentage calculation of actual versus allowable LPD for all building facade/landscape lighting. | | ELEC |
| | | | Final Design | | Exterior Lighting IESNA Zone: Indicate which IESNA zone is applicable to the project. | | ELEC |
| | | | Final Design | | Exterior Lighting Site Lumen table indicating, for each fixture type, quantity installed, initial lamp lumens per luminaire, initial lamp lumens above 90 degrees from Nadir, total lamp lumens and total lamp lumens above 90 degrees. Percentage of site lamp lumens above 90 degrees from nadir to total lamp lumens. | | ELEC |
| | | | Final Design | | Exterior Lighting Narrative describing analysis used for addressing requirements for light trespass at site boundary and beyond. | | ELEC |
| | | | | | | | |
| **CATEGORY 2 – WATER EFFICIENCY** | | | | | | | |
| WE1.1 | | Water Efficient Landscaping: Reduce by 50% | Final Design | | Statement indicating which option for compliance applies. | | CIV |
| OCT09REV | | | **Final Design | | Delineation and labeling of "LEED Project site boundary" on site plan. | | CIV |
| | | | Final Design | | Calculation indicating, for baseline and design case, total water applied, total potable water applied, total non-potable water applied. Design case percent potable water reduction. If nonpotable water is used, indicate source of nonpotable water. | | CIV |
| | | | Final Design | | List of landscape plan drawings. | | CIV |
| | | | Final Design | | Narrative describing landscaping and irrigation design strategies, including water use calculation methodology used to determine savings and, if non-potable water is used, specific information about source and available quantity. | | CIV |
| WE1.2 | | Water Efficient Landscaping: No Potable Water Use or No Irrigation | Same as WE1.1 | | Same as WE1.1 | | CIV |
| WE2 | | Innovative Wastewater Technologies | Final Design | | Statement confirming which option for compliance applies. | | MEC |

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|---|---|---|---|---|---|---|---|
| **PAR** | | **FEATURE** | **DUE AT** | | **REQUIRED DOCUMENTATION** | **DATE** | **REV** |
| | | | Final Design | | Statement confirming which occupancy breakdown applies (default or special). For special occupancy breakdown, indicate source and explanation for ratio. | | MEC |
| | | | Final Design | | Occupancy calculation including male/female numbers for FTEs, visitors, students, customers, residential and other type occupants/users | | MEC |
| | | | Final Design | | Statement indicating percent of male restrooms with urinals. Statement indicating annual days of operation. | | MEC |
| | | | Final Design | | Baseline flush fixture calculation spreadsheet indicating, for each fixture type, gender, flush rate, daily uses per person for each occupant type identified in occupancy calculation and annual baseline flush fixture water usage. | | MEC |
| | | | Final Design | | Design case flush fixture calculation spreadsheet indicating, for each fixture type, gender, fixture manufacturer, fixture model number, flush rate, percent of occupants using this fixture type, daily uses per person for each occupant type identified in occupancy calculation and annual design case flush fixture water usage. | | MEC |
| | | | Final Design | | Option 1: If onsite non-potable water is used, identify source(s), indicate annual quantity from each source and indicate total annual quantity from all onsite non-potable water sources. | | MEC |
| | | | Final Design | | Option 1: Summary calculation indicating baseline annual water consumption, design case annual water consumption, non-potable annual water consumption and total percentage annual water savings. | | MEC |
| | | | Final Design | | Option 2: Statement confirming on-site treatment of all generated wastewater to tertiary standards and all treated wastewater is either infiltrated or used on-site. | | MEC |
| | | | Final Design | | Option 2: List of drawing and specification references that convey design of on-site wastewater treatment features. | | CIV |
| | | | Final Design | | Option 2: On-site water treatment quantity calculation indicating all on-site wastewater source(s), annual quantity treated, annual quantity infiltrated and annual quantity re-used on site from each source and totals for annual quantity treated, annual quantity infiltrated and annual quantity re-used on site from all sources. | | CIV |
| | | | Final Design | | Option 2: Wastewater summary calculation indicating design case annual flush fixture water usage, annual on-site water treatment and percentage sewage convyance reduction. | | MEC |
| | | | Final Design | | Narrative describing project strategy for reduction of potable water use for sewage conveyance, including specific information on reclaimed water usage and treated wastewater usage. | | MEC |
| WE3.1 | | Water Use Reduction: 20% Reduction | Final Design | | Statement confirming which occupancy breakdown applies (default or special). For special occupancy breakdown, indicate source and explanation for ratio. | | MEC |
| | | | Final Design | | Occupancy calculation including male/female numbers for FTEs, visitors, students, customers, residential and other type occupants/users | | MEC |
| | | | Final Design | | Statement indicating percent of male restrooms with urinals. Statement indicating annual days of operation. | | MEC |
| | | | Final Design | | Baseline flush fixture calculation spreadsheet indicating, for each fixture type, gender, flush rate, daily uses per person for each occupant type identified in occupancy calculation and annual baseline flush fixture water usage. | | MEC |
| | | | Final Design | | Design case flush fixture calculation spreadsheet indicating, for each fixture type, gender, fixture manufacturer, fixture model number, flush rate, percent of occupants using this fixture type, daily uses per person for each occupant type identified in occupancy calculation and annual design case flush fixture water usage. | | MEC |
| | | | Closeout | X | Manufacturer published product data or certification confirming fixture water usage. | | PE |
| WE3.2 | | Water Use Reduction: 30% Reduction | Same as WE3.1 | | Same as WE3.1 | | MEC |
| **CATEGORY 3 – ENERGY AND ATMOSPHERE** | | | | | | | |
| EAPR1 | | Fundamental Commissioning of the Building Energy Systems (PREREQUISITE) | **Final Design | | **Owner's Project Requirements document | | ALL |
| | | | **Final Design | | **Basis of Design document for commissioned systems | | MEC, ELEC |
| | | | **Final Design | | **Commissioning Plan | | MEC, ELEC |

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| **PAR** | | **FEATURE** | **DUE AT** | | **REQUIRED DOCUMENTATION** | **DATE** | **REV** |
| | | | Closeout | | Statement confirming all commissioning requirements have been incorporated into construction documents. | | PE |
| | | | Closeout | | Commissioning Report | | PE |
| EAPR2 | | Minimum Energy Performance (PREREQUISITE) | Final Design | | Statement listing the mandatory provisions of ASHRAE 90.1 that project meets relative to compliance with this prerequisite and indicating which compliance path was used. | | MEC ELEC ARC |
| EAPR3 | | Fundamental Refrigerant Management (PREREQUISITE) | Final Design | | Statement indicating which option for compliance applies. | | MEC |
| | | | Final Design | | Option 2: Narrative describing phase out plan, including specific information on phase out dates and refrigerant quantities. | | MEC |
| EA1 | | Optimize Energy Performance | Final Design | | Statement indicating which compliance path option applies. | | MEC |
| | | | Final Design | | Option 1: Statement confirming simulation software capabilities and confirming assumptions and methodology. | | MEC |
| | | | Final Design | | Option 1: General information including simulation program, principal heating source, percent new construction and renovation, weather file, climate zone and Energy Star Target Finder score. | | MEC |
| | | | Final Design | | Option 1: Space summary listing, for each building use, the conditioned area, unconditioned area and total area and include total area for each category | | MEC |
| | | | Final Design | | Option 1: List of all simulation output advisory message data and show difference between baseline and proposed design | | MEC |
| | | | Final Design | | Option 1: Comparison summary for energy model inputs including description of baseline and design case energy model inputs, showing both by element type | | MEC |
| | | | Final Design | | Option 1: Energy type summary lising, for each energy type, utility rate description, units of energy and units of demand | | MEC |
| | | | Final Design | | Option 1: Statement indicating whether project uses on-site renewable energy. If yes, list all sources and indicate, for each source, backup energy type, annual energy generated, rated capacity and renewable energy cost | | MEC |
| | | | Final Design | | Option 1: If analysis includes exceptional calculation methods, statement describing how exceptional calculation measure cost savings is determined | | MEC |
| | | | Final Design | | Option 1: If analysis includes exceptional calculation methods, for each exceptional calculation method indicate energy types and, for each energy type, annual energy savings, annual cost savings, and brief descriptive narrative | | MEC |
| | | | Final Design | | Option 1: Baseline performance rating compliance report table indicating, for each energy end use, whether it is a process load, energy type, annual and peak energy demand for all four orientations. For each orientation indicate total annual energy use for each orientation and total annual process energy use. | | MEC |
| | | | Final Design | | Option 1: Baseline energy cost table indicating, for each energy type, annual cost for all four orientations and building total energy cost. | | MEC |
| | | | Final Design | | Option 1: Proposed Design performance rating compliance report table indicating, for each energy end use, whether it is a process load, energy type, annual and peak energy demand, baseline annual and peak energy demand and percent savings. Indicate total annual energy use and total annual process energy use for both proposed design and baseline and percent savings. | | MEC |
| | | | Final Design | | Option 1: Proposed Design energy cost table indicating, for each energy type, annual cost for all four orientations and building total energy cost. | | MEC |
| | | | Final Design | | Option 1: Energy cost and consumption by energy type report indicating, for each energy type, proposed design and baseline annual use and annual cost, percent savings annual use and annual cost. Indicate for renewable energy annual energy generated and annual cost. Indicate exceptional calculations annual energy savings and annual cost savings. Indicate building total annual energy use, annual energy cost for proposed design and baseline and indicate percent savings annual energy use and annual energy cost. | | MEC |

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| | | | Final Design | | Option 1: Compliance summaries from energy simulation software. If software does not produce compliance summaries provide output summaries and example input summaries for baseline and proposed design supporting data in the tables. Output summaries must include simulated energy consumption by end use and total energy use and cost by energy type. Example input summaries should represent most common systems and must include occupancy, use pattern, assumed envelope component sizes and descriptive features and assumed mechanical equipment types and descriptive features | | MEC |
| | | | Final Design | | Option 1: Energy rate tariff from project energy providers (only if not using LEED Reference Guide default rates) | | MEC |
| EA2.1 | | On-Site Renewable Energy | Final Design | | Statement indicating which compliance path option applies. | | ELEC |
| | | | Final Design | | List all on-site renewable energy sources and indicate, for each source, backup energy type, annual energy generated, rated capacity and renewable energy cost. Indicate total annual energy use (all sources), total annual energy cost (all sources) and percent renewable energy cost. | | ELEC MEC |
| | | | Final Design | | Option 1: Indicate, for renewable energy,proposed design total annual energy generated and annual cost. | | ELEC MEC |
| | | | Final Design | | Option 2: Indicate CBECS building type and building gross area. Provide the following CBECS data: median annual electrical intensity, median annual non-electrical fuel intensity, average electric energy cost, average non-electric fuel cost, annual electric energy use and cost, annual non-electric fuel use and cost. | | ELEC MEC |
| | | | Final Design | | Option 2: Narrative describing renewable systems and explaining calculation method used to estimate annual energy generated, including factors influencing performance. | | ELEC MEC |
| EA2.2 | | On-Site Renewable Energy | Same as EA2.1 | | Same as EA2.1 | | ELEC MEC |
| EA2.3 | | On-Site Renewable Energy | Same as EA2.1 | | Same as EA2.1 | | ELEC MEC |
| EA3 | | Enhanced Commissioning | **Final Design | | **Owner's Project Requirements document (OPR) | | ALL |
| | | | **Final Design | | **Basis of Design document for commissioned systems (BOD) | | ELEC MEC |
| | | | **Final Design | | **Commissioning Plan | | ELEC MEC |
| | | | Closeout | | Statement confirming all commissioning requirements have been incorporated into construction documents. | | PE |
| | | | Closeout | | **Commissioning Report | | PE |
| | | | **Final Design | | Statement by CxA confirming Commissioning Design Review | | |
| | | | Closeout | | Statement by CxA confirming review of Contractor submittals for compliance with OPR and BOD | | PE |
| | | | Closeout | | **Systems Manual | | PE |
| | | | Closeout | | Statement by CxA confirming completion of O&M staff and occupant training | | PE |
| | | | Closeout | | **Scope of work for post-occupancy review of building operation, including plan for resolution of outstanding issues | | PE |
| | | | **Predesign | | Statement confirming CxA qualifications and contractual relationships relative to work on this project, demonstrating that CxA is an independent third party. | | MEC |
| EA4 | | Enhanced Refrigerant Management | Final Design | | Refrigerant impact calculation table with all building data and calculation values as shown in LEED 2.2 Reference Guide Example Calculations | | MEC |
| | | | Final Design | | Narrative describing any special circumstances or explanatory remarks OCT09REV | | |
| | | | Closeout | X | Cut sheets highlighting refrigerant data for all HVAC components. | | PE |
| EA5 | | Measurement & Verification | Closeout | | Statement indicating which compliance path option applies. | | PE |
| | | | Closeout | | Measurement and Verification Plan | | PE |
| | | | Closeout | | **Scope of work for post-occupancy implementation of M&V plan | | PE |
| EA6 | | Green Power | Closeout | | Statement indicating which compliance path option applies. | | PE |
| | | | Closeout | | Option 1: Indicate proposed design total annual electric energy usage | | PE |
| | | | Closeout | | Option 2: Indicate actual total annual electric energy usage | | PE |
| | | | Closeout | | Option 3: Calculation indicating building type, total gross area, median electrical intensity and annual electric energy use | | PE |

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| | | | Closeout | | Green power provider summary table indicating, for each purchase type, provider name, annual quantity green power purchased and contract term. Indicate total annual green power use and indicate percent green power | | PE |
| | | | Closeout | | Narrative describing how Green Power or Green Tags are purchased | | PE |
| **CATEGORY 4 – MATERIALS AND RESOURCES** | | | | | | | |
| MRPR1 | | Storage & Collection of Recyclables (PREREQUISITE) | Final Design | | Statement confirming that recycling area will accommodate recycling of plastic, metal, paper, cardboard and glass. Narrative indicating any other materials addressed and coordination with pickup. | | ARC |
| MR1.1 | | Building Reuse: Maintain 75% of Existing Walls, Floors & Roof | **Final Design | | If project includes a building addition, confirm that area of building addition does not exceed 2x the area of the existing building. | | ARC |
| | | | **Final Design | | Spreadsheet listing, for each building structural/envelope element, the existing area and reused area. Total percent reused. | | ARC |
| MR1.2 | | Building Reuse: Maintain 95% of Existing Walls, Floors & Roof | Same as MR1.1 | | Same as MR1.1 | | ARC |
| MR1.3 | | Building Reuse: Maintain 50% of Interior Non-Structural Elements | **Final Design | | If project includes a building addition, confirm that area of building addition does not exceed 2x the area of the existing building. | | ARC |
| | | | **Final Design | | Spreadsheet listing, for each building interior non-structural element, the existing area and reused area. Total percent reused. | | ARC |
| MR2.1 | | Construction Waste Management: Divert 50% From Disposal | **Preconstruction | | Waste Management Plan | | PE |
| | | | **Construction Quarterly and Closeout | | Spreadsheet calculations indicating material description, disposal/diversion location (or recycling hauler), weight, total waste generated, total waste diverted, diversion percentage | | PE |
| | | | | | OCT09REV | | |
| | | | **Construction Quarterly and Closeout | | Receipts/tickets for all items on spreadsheet | | PE |
| MR2.2 | | Construction Waste Management: Divert 75% From Disposal | Same as MR2.1 | | Same as MR2.1 | | PE |
| MR3.1 | | Materials Reuse: 5% | Closeout | | Statement indicating total materials value and whether default or actual. | | PE |
| | | | Closeout | | Spreadsheet calculations indicating, for each reused/salvaged material, material description, source or vendor, cost. Total reused/salvaged materials percentage. | | PE |
| MR3.2 | | Materials Reuse: 10% | Same as MR3.1 | | Same as MR3.1 | | PE |
| MR4.1 | | Recycled Content: 10% (post-consumer + 1/2 pre-consumer) | Closeout | | Statement indicating total materials value and whether default or actual. | | PE |
| | | | Closeout | | Spreadsheet calculations indicating, for each recycled content material, material name/description, manufacturer, cost, post-consumer recycled content percent, pre-consumer recycled content percent, source of recycled content data. Total post-consumer content materials cost, total pre-consumer content materials cost, total combined recycled content materials cost, recycled content materials percentage. | | PE |
| | | | Final Design or NLT Preconstruction | | **Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal. OCT09REV | | PE |
| | | | Closeout | X | Manufacturer published product data or certification, confirming recycled content percentages in spreadsheet | | PE |
| MR4.2 | | Recycled Content: 20% (post-consumer + 1/2 pre-consumer) | Same as MR4.1 | | Same as MR4.1 | | PE |
| MR5.1 | | Regional Materials:10% Extracted, Processed & Manufactured Regionally | Closeout | | Statement indicating total materials value and whether default or actual. | | PE |
| | | | Closeout | | Spreadsheet calculations indicating, for each regional material, material name/description, manufacturer, cost, percent compliant, harvest distance, manufacture distance, source of manufacture and harvest location data. Total regional materials cost, regional materials percentage. | | PE |
| | | | Preconstruction OCT09REV | | **Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal. OCT09REV | | PE |
| | | | Closeout | X | Manufacturer published product data or certification confirming regional material percentages in spreadsheet | | PE |

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| MR5.2 | | Regional Materials:20% Extracted, Processed & Manufactured Regionally | Same as MR5.1 | | Same as MR5.1 | | PE |
| MR6 | | Rapidly Renewable Materials | Closeout | | Statement indicating total materials value and whether default or actual. | | PE |
| | | | Closeout | | Spreadsheet calculations indicating, for each rapidly renewable material, material name/description, manufacturer, cost, rapidly renewable content percent, rapidly renewable product value. Total rapidly renewable product value, rapidly renewable materials percentage. | | PE |
| | | | Final Design OCT09REV | | **Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal. OCT09REV | | ARC |
| | | | Closeout | X | Manufacturer published product data or certification confirming rapidly renewable material percentages in spreadsheet | | PE |
| MR7 | | Certified Wood | Closeout | | Statement indicating total materials value and whether default or actual. | | PE |
| | | | Closeout | | Spreadsheet calculations indicating, for each certified wood material, material name/description, vendor, cost, wood component percent, certified wood percent of wood component, FSC chain of custody certificate number. Total certified wood product value, certified wood materials percentage. | | PE |
| | | | Final Design or NLT Preconstruction | | **Purchasing Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal. OCT09REV | | PE |
| | | | Closeout | X | Vendor invoices, FSC chain of custody certificates and anufacturer published product data or certification confirming all certified wood materials percentages in spreadsheet. | | PE |
| **CATEGORY 5 – INDOOR ENVIRONMENTAL QUALITY** | | | | | | | |
| EQPR1 | | Minimum IAQ Performance (PREREQUISITE) | Final Design | | Statement indicating which option for compliance applies, stating applicable criteria/requirement, and confirming that project has been designed to meet the applicable requirements. | | MEC |
| | | | Final Design | | Narrative describing the project's ventilation design, including specifics about fresh air intake volumes and special considerations. | | MEC |
| EQPR2 | | Environmental Tobacco Smoke (ETS) Control (PREREQUISITE) | Final Design | | Statement indicating which option for compliance applies, stating applicable criteria/requirement, and confirming that project has been designed to meet the applicable requirements. | | ARC |
| | | | Final Design | | List of drawing and specification references that convey conformance to applicable requirements (signage, exhaust system, room separation details, etc). | | ARC |
| EQ1 | | Outdoor Air Delivery Monitoring | Final Design | | Statement indicating which option for compliance applies and confirming that project has been designed to meet the applicable requirements. | | MEC |
| | | | Final Design | | List of drawing and specification references that convey conformance to applicable requirements. | | MEC |
| | | | Final Design | | Narrative describing the project's ventilation design and CO2 monitoring system, including specifics about monitors, operational parameters and setpoints. | | MEC |
| | | | Closeout | X | Cut sheets for CO2 monitoring system. | | PE |
| EQ2 | | Increased Ventilation | Final Design | | Statement indicating which option for compliance applies and confirming that project has been designed to meet the applicable requirements. | | MEC |
| | | | Final Design | | Narrative describing the project's ventilation design, including specifics about zone fresh air intake volumes and demonstrating compliance. | | MEC |
| | | | Final Design | | Option 2: Narrative describing design method used for determining natural ventilation design, including calculation methodology/model results and demonstrating compliance. | | MEC |
| | | | Final Design | | List of drawing and specification references that convey conformance to applicable requirements. | | MEC |
| EQ3.1 | | Construction IAQ Management Plan: During Construction | **Preconstruction | | Construction IAQ Management Plan | | PE |
| | | | Closeout | | Statement confirming whether air handling units were operated during construction | | PE |
| | | | Closeout | | Dated jobsite photos showing examples of IAQ management plan practices being implemented. Label photos to indicate which practice they demonstrate. Minimum one photo of each practice at each building. | | PE |
| | | | Closeout | | Spreadsheet indicating, for each filter installed during construction, the manufacturer, model number, MERV rating, location installed, and if it was replaced immediately prior to occupancy. | | PE |
| EQ3.2 | | Construction IAQ Management Plan: Before Occupancy | **Preconstruction | | Construction IAQ Management Plan | | PE |

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| | | | Closeout | | Statement indicating which option for compliance applies and confirming that required activities have occurred that meet the applicable requirements. | | PE |
| | | | Closeout | | Option 1a: Narrative describing the project's flushout process, including specifics about temperature, airflow and duration, special considerations (if any) and demonstrating compliance. | | PE |
| | | | Closeout | | Option 1b: Narrative describing the project's pre-occupancy and post-occupancy flushout processes, including specifics about temperature, airflow and duration, special considerations (if any) and demonstrating compliance. | | PE |
| | | | Closeout | | Option 2: Narrative describing the project's IAQ testing process, including specifics about contaminants tested for, locations, remaining work at time of test, retest parameters and special considerations (if any). | | PE |
| | | | Closeout | | Option 2: IAQ testing report demonstrating compliance. | | PE |
| EQ4.1 | | Low Emitting Materials: Adhesives & Sealants | Closeout | | Spreadsheet indicating, for each applicable indoor adhesive, sealant and sealant primer used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data. | | PE |
| | | | Closeout | | Spreadsheet indicating, for each applicable indoor aerosol adhesive, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data - OR - Statement confirming no indoor aerosol adhesives were used for the project. | | PE |
| | | | Closeout | X | Manufacturer published product data or certification confirming material VOCs in spreadsheet | | PE |
| EQ4.2 | | Low Emitting Materials: Paints & Coatings | Closeout | | Spreadsheet indicating, for each applicable indoor paint and coating used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data. | | PE |
| | | | Closeout | | Spreadsheet indicating, for each applicable indoor anti-corrosive/anti-rust paint and coating used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data - OR - Statement confirming no indoor anti-corrosive/anti-rust paints were used for the project . | | PE |
| | | | Closeout | X | Manufacturer published product data or certification confirming material VOCs in spreadsheet | | PE |
| EQ4.3 | | Low Emitting Materials: Carpet Systems | Closeout | | Spreadsheet indicating, for each indoor carpet used, the manufacturer, product name/model number, if it meets LEED requirement (yes/no) and source of LEED compliance data. | | PE |
| | | | Closeout | | Spreadsheet indicating, for each indoor carpet cushion used, the manufacturer, product name/model number, if it meets LEED requirement (yes/no) and source of LEED compliance data - OR - Statement confirming no indoor carpet cushion was used for the project. | | PE |
| | | | Closeout | X | Manufacturer published product data or certification confirming material CRI label in spreadsheet | | PE |
| EQ4.4 | | Low Emitting Materials: Composite Wood & Agrifiber Products | Closeout | | Spreadsheet indicating, for each indoor composite wood and agrifiber product used, the manufacturer, product name/model number, if it contains added urea formaldehyde (yes/no) and source of LEED compliance data. | | PE |
| | | | Closeout | X | Manufacturer published product data or certification confirming material urea formaldehyde in spreadsheet | | PE |
| EQ5 | | Indoor Chemical & Pollutant Source Control | Closeout OCT09REV | | Spreadsheet indicating, for each permanent entryway system used, the manufacturer, product name/model number and description of system. Roll-up and carpet systems requiring weekly cleaning to earn this credit are not a permitted option for Army projects. | | PE |
| | | | Final Design | | List of drawing and specification references that convey locations and installation methods for entryway systems. | | ARC |
| | | | Final Design | | Spreadsheet indicating, for each chemical use area, the room number, room name, description of room separation features (walls, floor/ceilings, openings) and pressure differential from surrounding spaces with doors closed - OR - Statement confirming that project includes no chemical use areas and that no hazardous cleaning materials are needed for building maintenance. | | ARC MEC |
| | | | Final Design | | If project includes chemical use areas: List of drawing and specification references that convey locations of chemical use areas, room separation features and exhaust system. | | ARC MEC |
| | | | Closeout OCT09REV | | If project includes chemical use areas: Spreadsheet indicating, for AHUs/mechanical ventilation equipment serving occupied areas, the manufacturer, model number, MERV rating, location installed, and if it was replaced immediately prior to occupancy (yes/no) - OR - Statement confirming that project does not use mechanical equipment for ventilation of occupied areas. | | PE |

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| EQ6.1 | | Controllability of Systems: Lighting | Final Design | | Calculation indicating total number of individual workstations, number of workstations with individual lighting controls and the percentage of workstations with individual lighting controls. | | ELEC |
| | | | Final Design | | For each shared multi-occupant space, provide a brief description of lighting controls. | | ELEC |
| | | | Final Design | | Narrative describing lighting control strategy, including type and location of individual controls and type and location of controls in shared multi-occupant spaces. | | ELEC |
| EQ6.2 | | Controllability of Systems: Thermal Comfort | Final Design | | Calculation indicating total number of individual workstations, number of workstations with individual thermal comfort controls and the percentage of workstations with individual thermal comfort controls. | | MEC |
| | | | Final Design | | For each shared multi-occupant space, provide a brief description of thermal comfort controls. | | MEC |
| | | | Final Design | | Narrative describing thermal comfort control strategy, including type and location of individual and shared multi-occupant controls. | | MEC |
| EQ7.1 | | Thermal Comfort: Design | Final Design | | Design criteria spreadsheet indicating, for spring, summer, fall and winter, maximum indoor space design temperature, minimum indoor space design temperature and maximum indoor space design humidity. | | MEC |
| | | | Final Design | | Narrative describing method used to establish thermal comfort control conditions and how systems design addresses the design criteria, including compliance with the referenced standard. | | MEC |
| EQ7.2 | | Thermal Comfort: Verification | Final Design | | Narrative describing the scope of work for the thermal comfort survey, including corrective action plan development | | MEC |
| EQ8.1 | | Daylight & Views: Daylight 75% of Spaces | Final Design | | Option 1: Table indicating all regularly occupied spaces with space area and space area with 2% daylighting factor. Sum of regularly occupied areas and regularly occupied areas with 2% daylighting factor. Percentage calculation of areas with 2% daylighting factor to total regularly occupied areas. | | ARC |
| | | | Final Design | | Option 1: Glazing factor calculation table | | ARC |
| | | | Final Design | | Option 2: Simulation model method, software and output data | | ARC |
| | | | Final Design | | Option 2: Table indicating all regularly occupied spaces with space area, space area with minimum 25 footcandles daylighting illumination, and method of providing glare control. Sum of regularly occupied areas and regularly occupied areas with 25 fc daylighting. Percentage calculation of areas with 25 fc daylighting to total regularly occupied areas. | | ARC |
| | | | Final Design | | For all occupied spaces excluded from the calculation, provide narrative indicating reasons for excluding the space. | | ARC |
| | | | Final Design | | List of drawing and specification references that convey exterior glazed opening head and sill heights and glazing performance properties. | | ARC |
| | | | Closeout | X | Manufacturer published product data or certification confirming glazing Tvis in spreadsheet | | PE |
| EQ8.2 | | Daylight & Views: Views for 90% of Spaces | Final Design | | Table indicating all regularly occupied spaces with space area and space area with access to views. Sum of regularly occupied areas and regularly occupied areas with access to views. Percentage calculation of areas with views to total regularly occupied areas. | | ARC |
| | | | Final Design | | For all occupied spaces excluded from the calculation, provide narrative indicating reasons for excluding the space. | | ARC |
| | | | Final Design | | LEED Floor plan drawings showing line of sight diagramming of views areas in each regularly occupied space. List of drawing/specification references that convey exterior glazed opening head and sill heights. | | ARC |
| | | | | | | | |
| **CATEGORY 6 – FACILITY DELIVERY PROCESS** | | | | | | | |
| IDc1.1 | | Innovation in Design | Final Design OCT09REV | | Narrative decribing intent, requirement for credit, project approach to the credit. List of drawings and specification references that convey implementation of credit. All other documentation that validates claimed credit. | | |
| IDc1.2 | | Innovation in Design | Final Design OCT09REV | | | | |
| IDc1.3 | | Innovation in Design | Final Design OCT09REV | | | | |
| IDc1.4 | | Innovation in Design | Final Design OCT09REV | | | | |
| IDc2 | | LEED Accredited Professional | Final Design | | Narrative indicating name of LEED AP, company name of LEED AP, description of LEED AP's role and responsiblilities in the project. | | ARC |
| | | | | | | | |

**ATTACHMENT F**
Version 02-03-2010

**BUILDING INFORMATION MODELING REQUIREMENTS**

## 1.0 Section 1 - Submittal Format

1.1. Design Deliverables. Develop all designs using Building Information Modeling (BIM) and Computer Aided Design (CAD) software. Design submittal drawings shall be A1 size, suitable for half-size scaled reproduction.

## 2.0 Section 2 – Design Requirements

2.1. BIM Model and Facility Data. Contractor shall use BIM application(s) and software(s) to develop project designs. "Facility Data" is defined as associated intelligent attribute data. The "Model" is defined as 3D graphics that includes Facility Data and output as described in the paragraph 'Output' below. Contractors will use the Model to produce accurate Construction Documents. For each Center of Standardization (CoS) facility type included in this project, all BIM Models and associated Facility Data shall be submitted in Bentley Systems BIM 08.08.00.10 with associated USACE Bentley BIM Workspace (which includes specific standard BIM libraries and definitions). This Workspace can be downloaded from the CAD/BIM Technology Center. [Where available, the workspace will be specific to this CoS Facility Standard Design. The Contractor will be provided a baseline multi-discipline BIM Project Model for the CoS Facility Standard Design type, where such a model exists (for the purposes of site adaptation).] The USACE Bentley BIM Workspace is dependent on specific versions of the Bentley BIM suite of products and only the versions of the software that are listed in the Contractor instructions included with the USACE BIM Workspace are permitted to be used.

2.1.1. Reference. Refer to ERDC TR-06-10, "U.S. Army Corps of Engineers Building Information Modeling Road Map" from the CAD/BIM Technology Center website for more information on the USACE BIM implementation goals.

2.2. Drawings. Deliver CAD files used for the creation of the Construction Documents Drawings per requirements in Section 01 33 16, the criteria of the USACE Fort Worth District, and as noted herein. Specification of a CAD file format for these Drawings does not limit which BIM application(s) or software(s) may be used for project development and execution.

2.2.1. IFC Support. The Contractor's selected BIM application(s) and software(s) must support the IFC (Industry Foundation Class - see www.iai-tech.org). Submit any deviations from or additions to the IFC property sets for any new spaces, systems, and equipment for Government approval.

2.2.2. Submittal Requirements. BIM submittals shall be fully interoperable, compatible, and editable with the Bentley BIM tools. Use the specified version of the USACE Bentley BIM Workspace and conform to the requirements of **Sections 3 and 4 below**.

2.2.3. BIM Project Execution Plan.

2.2.3.1. Develop a BIM Project Execution Plan ("Plan" or "PxP") documenting the BIM and analysis technologies selected for the Project Model (integrated with the AEC CAD Standard) from concept development through As-Builts as a design, production, coordination, construction, and documentation tool and the collaborative process by which it shall be executed. See Section 7 for additional guidance on developing the Plan.

2.2.4. BIM Requirements..

2.2.4.1. Facility Data. Develop the Facility Data consisting of a set of intelligent elements for the Model (e.g., doors, air handlers, electrical panels). This Facility Data shall include all material definitions and attributes that are necessary for the Project facility design and construction. Additional data in support of Section 6 Contractor Electives is encouraged.

2.2.4.2. Model Content. The Model and Facility Data shall include, at a minimum, the requirements of Section 4 below.

2.2.4.3. Model Granularity. Models may vary in level of detail for individual elements within a model, but at a minimum must include all features that would be included on a quarter inch (1/4" = 1'0") scaled drawing (e.g. at least 1/16th, 1/8th and 1/4th), or appropriately scaled civil drawings.

2.2.4.4. Output. Submitted CAD drawings (e.g., plans, elevations, sections, schedules, details, etc.) shall be derived (commonly known as extractions, views or sheets) and maintained from the submitted Model and Facility Data.

2.3. Quality Control. Implement quality control (QC) parameters for the Model, including:

2.3.1. Model Standards Checks. QC validation used to ensure that the Project Facility Data set has no undefined, incorrectly defined or duplicated elements. Report non-compliant elements and corrective action plan to correct non-compliant elements. Provide the government with detailed justification and request government approval for any non-compliant element which the contractor proposes to be allowed to remain in the Model.

2.3.2. CAD Standards Checks. QC checking performed to ensure that the fonts, dimensions, line styles, levels and other construction document formatting issues are followed per the A/E/C CADD Standard.

2.3.3. Other Parameters. Develop such other QC parameters as Contractor deems appropriate for the Project and provide to the Government for concurrence.

2.4. Design and Construction Reviews. Perform design and construction reviews at each submittal stage under Section 3 to test the Model, including:

2.4.1. Visual Checks. Checking to ensure the design intent has been followed and that there are no unintended elements in the Model.

2.4.2. Interference Management Checks. Locate conflicting spatial data in the Model where two elements are occupying the same space. Log hard interferences (e.g., mechanical vs. structural or mechanical vs. mechanical overlaps in the same location) and soft interferences, (e.g., conflicts regarding equipment clearance, service access, fireproofing, insulation) in a written report and resolve.

2.4.3. IFC Coordination View. Provide an IFC Coordination View in IFC Express format for all deliverables. Provide exported property set data for all IFC supported named building elements.

2.4.4. Other Parameters. Develop such other Review parameters as the Contractor deems appropriate for the Project and provide to the Government for concurrence..

**3.0 Section 3 – Design Stage Submittal Requirements**

3.1. General Submittal Requirements.

3.1.1. Provide submittals in compliance with BIM Project Execution Plan deliverables at stages as described hereinafter.

3.1.2. At each Stage in Paragraphs 3.3 through 3.6, provide a Contractor-certified written report confirming that consistency checks as identified in Paragraphs 2.3 and 2.4 have been completed. This report shall be discussed as part of the review process and shall address cross-discipline interferences, if any.

3.1.3. At each Stage in Paragraphs 3.3 through 3.6, provide the Government with:

- The Model, Facility Data, Workspace and CAD Data files in native Bentley BIM/CAD.

- A 3-D interactive review format of the Model in Bentley Navigator, Autodesk Navisworks, Adobe 3D PDF 7.0 (or later), Google Earth KMZ or other format per Plan requirements. The file format for reviews can change between submittals.

- A list of all submitted files. The list should include a description, directory, and file name for each file submitted. For all CAD sheets, include the sheet title and sheet number. Identify files that have been produced from the submitted Model and Facility Data.

3.2. Initial Design Conference Submittal.

3.2.1. Submit a digital copy of the Plan where, in addition to Paragraph 3.1.4, the USACE Geographic District BIM Manager will coordinate with the USACE CoS BIM Manager to confirm acceptability of the Plan or advise as to additional processes or activities necessary to be incorporated.

3.2.2. Within thirty (30) days after the approval of the Plan, conduct a demonstration to review the Plan for clarification, and to verify the functionality of Model technology workflow and processes. If modifications are required, the Contractor shall complete the modifications and resubmit the Plan and perform subsequent demonstration for Government acceptance. There will be no payment for design or construction until the Plan is acceptable to the Government. The Government may also withhold payment for design and construction for unacceptable performance in executing the approved Plan.

3.3. Interim Design Submittals.

3.3.1. BIM and CAD Data. The Model shall include the requirements identified in Paragraph 2.2.4 as applicable to the Interim Design package(s).

3.4. Final Design Submissions and Design Complete Submittals.

3.4.1. BIM and CAD Data. The Model shall include the requirements identified in Paragraph 2.2.4. Acceptance according to Paragraph 3.1.4 is required before commencement of construction, as described in Paragraph 3.7.6 of Section 01 33 16.

3.5. Construction Submittals – Over-The-Shoulder Progress Reviews. Periodic quality control meetings or construction progress review meetings shall include quality control reviews on the implementation and use of the Model, including interference management and design change tracking information.

3.6. Final As-Builts BIM and CAD Data Submittal. Submit the final Model, Facility Data, and CAD files reflecting as-built conditions for Government Approval, as specified in Section 01 78 02.00 10, PROJECT CLOSEOUT.

**4.0 Section 4 – BIM Model Minimum Requirements and Output**

4.1. General Provisions. The deliverable Model shall be developed to include the systems described below as they would be built and the processes of installing them, and to reflect final as-built conditions. The deliverable model at the interim design stage and at the final design stage (“released for construction”) shall be developed to include as many of the systems described below as are necessary and appropriate at that design stage.

4.2. Architectural/Interior Design. The Architectural systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

4.2.1. Spaces. The Model shall include spaces defining accurate net square footage and net volume, and holding data for the room finish schedule for including room names and numbers. Include Programmatic Information provided by the Government or validated program to verify design space against programmed space, using this information to validate area quantities.

4.2.2. Walls and Curtain Walls. Each wall shall be depicted to the exact height, length, width and ratings (thermal, acoustic, fire) to properly reflect wall types. The Model shall include all walls, both interior and exterior, and the necessary intelligence to produce accurate plans, sections and elevations depicting these design elements.

4.2.3. Doors, Windows and Louvers. Doors, windows and louvers shall be depicted to represent their actual size, type and location. Doors and windows shall be modeled with the necessary intelligence to produce accurate window and door schedules.

4.2.4. Roof. The Model shall include the roof configuration, drainage system, penetrations, specialties, and the necessary intelligence to produce accurate plans, building sections and generic wall sections where roof design elements are depicted.

4.2.5. Floors. The floor slab shall be developed in the structural Model and then referenced by the architectural Model for each floor of the Project building.

4.2.6. Ceilings. All heights and other dimensions of ceilings, including soffits, ceiling materials, or other special conditions shall be depicted in the Model with the necessary intelligence to produce accurate plans, building sections and generic wall sections where ceiling design elements are depicted.

4.2.7. Vertical Circulation. All continuous vertical components (i.e., non-structural shafts, architectural stairs, handrails and guardrails) shall be accurately depicted and shall include the necessary intelligence to produce accurate plans, elevations and sections in which such design elements are referenced.

4.2.8. Architectural Specialties and Woodwork. All architectural specialties (i.e., toilet room accessories, toilet partitions, grab bars, lockers, and display cases) and woodwork (i.e., cabinetry and counters) shall be accurately depicted with the necessary intelligence to produce accurate plans, elevations and sections in which such design elements are referenced.

4.2.9. Signage. The Model shall include all signage and the necessary intelligence to produce accurate plans and schedules.

4.2.10. Schedules. Provide door, window, hardware sets using BHMA designations, flooring, wall finish, and signage schedules from the Model, indicating the type, materials and finishes used in the design.

4.3. Furniture. The furniture systems Model may vary in level of detail for individual elements within a Model, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing, and have necessary intelligence to produce accurate plans. Representation of furniture elements is to be 2D. Contractor may provide a minimal number of 3D representations as examples. Examples of furniture include, but are not limited to, desks, furniture systems, seating, tables, and office storage.

4.3.1. Furniture Coordination. Furniture that makes use of electrical, data or other features shall include the necessary intelligence to produce coordinated documents and data.

4.4. Equipment. The Model may vary in level of detail for individual elements within a Model. Equipment shall be depicted to meet layout requirements with the necessary intelligence to produce accurate plans and minimum schedules depicting their configuration. Examples of equipment include but are not limited to copiers, printers, refrigerators, ice machines and microwaves.

4.4.1. Schedules. Provide furniture and equipment schedules from the model indicating the materials, finishes, mechanical, and electrical requirements.

4.5. Structural. The structural systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

4.5.1. Foundations. All necessary foundation and/or footing elements, with necessary intelligence to produce accurate plans and elevations

4.5.2. Floor Slabs. Structural floor slabs shall be depicted, including all necessary recesses, curbs, pads, closure pours, and major penetrations accurately depicted.

4.5.3. Structural Steel. All steel columns, primary and secondary framing members, and steel bracing for the roof and floor systems (including decks), including all necessary intelligence to produce accurate structural steel framing plans and related building/wall sections.

4.5.4. Cast-in-Place Concrete. All walls, columns, and beams, including necessary intelligence to produce accurate plans and building/wall sections depicting cast-in-place concrete elements.

4.5.5. Expansion/Contraction Joints. Joints shall be accurately depicted.

4.5.6. Stairs. The structural Model shall include all necessary openings and framing members for stair systems, including necessary intelligence to produce accurate plans and building/wall sections depicting stair design elements.

4.5.7. Shafts and Pits. The structural Model shall include all necessary shafts, pits, and openings, including necessary intelligence to produce accurate plans and building/wall sections depicting these design elements.

4.6. Mechanical. The mechanical systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Small diameter (less than 1-1/2” NPS) field-routed piping is not required in the model. Additional minimum Model requirements include:

4.6.1. HVAC. All necessary heating, ventilating, air-conditioning and specialty equipment, including air distribution ducts for supply, return, and ventilation and exhaust ducts, including control system, registers, diffusers, grills and hydronic baseboards with necessary intelligence to produce accurate plans, elevations, building/wall sections and schedules.

4.6.1.1. Mechanical Piping. All necessary piping and fixture layouts, and related equipment, including necessary intelligence to produce accurate plans, elevations, building/wall sections, and schedules.

4.6.2. Plumbing. All necessary plumbing piping and fixture layouts, floor and area drains, and related equipment, including necessary intelligence to produce accurate plans, elevations, building/wall sections, riser diagrams, and schedules.

4.6.3. Equipment Clearances. All HVAC and Plumbing equipment clearances shall be modeled for use in interference management and maintenance access requirements.

4.6.4. Elevator Equipment. The Model shall include the necessary equipment and control system, including necessary intelligence to produce accurate plans, sections and elevations depicting these design elements.

4.7. Electrical/Telecommunications. The electrical systems Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Small diameter (less than 1-1/2”Ø) field-routed conduit is not required in the model. Additional minimum Model requirements include:

4.7.1. Interior Electrical Power and Lighting. All necessary interior electrical components (i.e., lighting, receptacles, special and general purpose power receptacles, lighting fixtures, panelboards, cable trays and control systems), including necessary intelligence to produce accurate plans, details and schedules. Lighting and power built into furniture/equipment shall be modeled.

4.7.2. Special Electrical Systems. All necessary special electrical components (i.e., security, Mass Notification, Public Address, nurse call and other special occupancies, and control systems), including necessary intelligence to produce accurate plans, details and schedules.

4.7.3. Grounding Systems. Grounding Systems. All necessary grounding components (i.e., lightning protection systems, static grounding systems, communications grounding systems, bonding), including necessary intelligence to produce accurate plans, details and schedules.

4.7.4. Communications. All existing and new communications service controls and connections, both above ground and underground with necessary intelligence to produce accurate plans, details and schedules. Cable tray routing shall be modeled without detail of cable contents.

4.7.5. Exterior Building Lighting. All necessary exterior lighting with necessary intelligence to produce accurate plans, elevations and schedules. The exterior building lighting Model shall include all necessary lighting, relevant existing and proposed support utility lines and equipment required with necessary intelligence to produce accurate plans, details and schedules.

4.7.6. Equipment Clearances. The model shall incorporate and define all electrical and communications working spaces, clearances, and required access

4.8. Fire Protection. The fire protection system Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a quarter inch (1/4”=1’0”) scaled drawing. Additional minimum Model requirements include:

4.8.1. Fire Protection System. All relevant fire protection components (i.e., branch piping, sprinkler heads, fittings, drains, pumps, tanks, sensors, control panels) with necessary intelligence to produce accurate plans, elevations, building/wall sections, riser diagrams, and schedules. All fire protection piping shall be modeled.

4.8.2. Fire Alarms. Fire alarm/mass notification devices and detection system shall be indicated with necessary intelligence to produce accurate plans depicting them.

4.9. Civil. The civil Model may vary in level of detail for individual elements, but at a minimum must include all features that would be included on a one inch (1”=100’) scaled drawing. Additional minimum Model requirements include:

4.9.1. Terrain (DTM). All relevant site conditions and proposed grading, including necessary intelligence to produce accurate Project site topographical plans and cross sections.

4.9.2. Drainage. All existing and new drainage piping, including upgrades thereto, including necessary intelligence to produce accurate plans and profiles for the Project site.

4.9.3. Storm Water and Sanitary Sewers. All existing and new sewer structures and piping, including upgrades thereto, on the Project site with necessary connections to mains or other distribution points as appropriate, including necessary intelligence to produce accurate plans and profiles for the Project site.

4.9.4. Utilities. All necessary new utilities connections from the Project building(s) to the existing or newly-created utilities, and all existing above ground and underground utility conduits, including necessary intelligence to produce accurate plans and site-sections.

4.9.5. Roads and Parking. All necessary roadways and parking lots or parking structures, including necessary intelligence to produce accurate plans, profiles and cross-sections.

## 5.0 Section 5 - Ownership and Rights in Data

5.1. Ownership. The Government has ownership of and rights at the date of Closeout Submittal to all CAD files, BIM Model, and Facility Data developed for the Project in accordance with FAR Part 27, clauses incorporated in Section 00 72 00, Contract Clauses and Special Contract Requirement 1.14 GOVERNMENT RE-USE OF DESIGN (Section 00 73 00). The Government may make use of this data following any deliverable.

## 6.0 Section 6 – Contractor Electives

6.1. Applicable Criteria. If the Contractor elected to include one or more of the following features as an elective in its accepted contract proposal for additional credit during the source selection, as described in the proposal submission requirements and evaluation criteria, the following criteria are requirements, as applicable to those elective feature(s).

6.2. COBIE Compliance. The Model and Facility Data for the Project shall fulfill Construction Operations Building Information Exchange (COBIE) requirements as defined by the Whole Building Design Guide organization, including all requirements for the indexing and submission of Portable Document Format (PDF) and other appropriate file formats that would otherwise be printed and submitted in compliance with Project operations and maintenance handover requirements.

6.3. Project Scheduling using the Model. In the BIM Execution Plan and during the Preliminary BIM Execution Plan Review, provide an overview of the use of BIM in the development and support of the project construction schedule.

6.3.1. Submittal Requirements. During the Submittal stages, the Contractor shall deliver the construction schedule with information derived from the Model.

6.3.1.1. Construction Submittals – Over-The-Shoulder Progress Reviews. Periodic quality control meetings or construction progress review meetings shall include quality control reviews on the implementation and use of the Model for project scheduling.

6.4. Cost Estimating. In the BIM Execution Plan and during the Preliminary BIM Execution Plan Review, provide an overview of the use of BIM in the development and support of cost estimating requirements, or other applications such as cost analysis and estimate validation.

6.4.1. Submittal Requirements. During the Submittal stages, the Contractor shall deliver cost estimating information derived from the Model.

6.4.2. Project completion. At project completion, the Contractor shall provide an MII (Micro Computer Aided Cost Estimating System Generation II) Cost Estimate which follows the USACE Cost Engineering Military Work Breakdown System (WBS), a modified Uniformat, to at least the sub-systems level and uses quantity information supplied directly from BIM output to the maximum extent possible, though other "Gap" quantity information will be included as necessary for a complete and accurate cost estimate.

6.4.2.1. Sub system level extracted quantities from the BIM for use within the estimate shall be provided according to how detailed line items or tasks should be installed/built so that accurate costs can be developed and/or reflected. Therefore, when developing a BIM, the designer shall be cognizant of what tasks need to be separated appropriately at the beginning stages of model development, such as tasks done on the first floor versus the same task on higher floors that will be more labor intensive and therefore need to have a separate quantity and be priced differently. Tasks and their extracted quantities from the BIM shall be broken done by their location (proximity in the structure) as well as the complexity of its installation.

6.4.2.2. At all design stages it shall be understood that BIM output as described in this document will not generate all quantities that are necessary in order to develop a complete and accurate cost estimate of the project based on the design. An example of this would be plumbing that is less than 1.5" diameter and therefore not expected to be modeled due to granularity; this information is commonly referred to as The Gap. Quantities from The Gap and their associated costs shall be included in the final project actual cost estimates as well.

6.5. Other Analyses and Reports. Structural, energy and efficiency, EPACT 2005 & EISA 2007, lighting design, daylighting, electrical power, psychrometric processing, shading, programming, LEED, fire protection, code compliance, Life Cycle Cost, acoustic, plumbing.

## 7.0 Section 7 – BIM Project Execution Plan Template

7.1. Contractors will utilize the latest version of the USACE BIM PROJECT EXECUTION PLAN (USACE PxP) Template to develop an acceptable Plan. The template can be downloaded from the CAD/BIM Technology Center website.

**ATTACHMENT G**
**DESIGN SUBMITTAL DIRECTORY AND SUBDIRECTORY FILE ARRANGEMENT**

Organize electronic design submittal files in a subdirectory/file structure in accordance with the following table. The Contractor may suggest a slightly different structure, subject to the discretion of the government.

**Design Submittal Directory and Subdirectory File Arrangement.**

| Directory | Sub-Directory | Sub-Directory or Files | Files |
|---|---|---|---|
| Submittal/Package Name | Narratives | PDF file or files with updated design narrative for each applicable design discipline | |
| | Drawings | PDF (subdirectory) | Single PDF file with all applicable drawing sheets - bookmarked by sheet number and name |
| | | BIM (subdirectory) See Attachment F. | BIM project folder (with files) per the USACE Workspace. Include an Excel drawing index file with each drawing sheet listed by sheet #, name and corresponding dgn file name (Final Design & Design Complete only) |
| | Design Analysis & Calculations | Individual PDF files containing design analysis and calculations for each discipline applicable to the submittal | |
| | | PDF file with Fire Protection and Life Safety Code Review checklist | |
| | LEED | PDF file with updated Leed Check List | |
| | | PDF file or files with LEED Templates for each point with applicable documentation included in each file. | |
| | | LEED SUBMITTALS | |
| | Energy Analysis | PDF with baseline energy consumption analysis | |
| | | PDF with actual building energy consumption analysis | |
| | Specifications | Single PDF file with table of contents and all applicable specifications sections. | |
| | | Submittal Register (Final Design & Design Complete submittal only) | |
| | Design Quality Control | PDF file or files with DQC checklist(s) and/or statements | |
| | Building Rendering(s) | PDF file of rendering for each building type included in contract (Final Design & Design Complete). | |

**SECTION 01 45 04.00 10**
REV 2.10 – 31 DEC 2009

**CONTRACTOR QUALITY CONTROL**

**1.0 GENERAL**

1.1. REFERENCES

1.2. PAYMENT

**2.0 PRODUCTS (NOT APPLICABLE)**

**3.0 EXECUTION**

3.1. GENERAL REQUIREMENTS

3.2. QUALITY CONTROL PLAN

3.3. COORDINATION MEETING

3.4. QUALITY CONTROL ORGANIZATION

3.5. SUBMITTALS AND DELIVERABLES

3.6. CONTROL

3.7. TESTS

3.8. COMPLETION INSPECTION

3.9. DOCUMENTATION

3.10. NOTIFICATION OF NONCOMPLIANCE

## 1.0 GENERAL

### 1.1. REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. Refer to the latest edition, as of the date of the contract solicitation.

- ASTM INTERNATIONAL (ASTM)
- ASTM D 3740 Minimum Requirements for Agencies

  Engaged in the Testing and/or Inspection
  of Soil and Rock as Used in Engineering
  Design and Construction
- ASTM E 329 Agencies Engaged in the Testing

  and/or Inspection of Materials Used in
  Construction
- U.S. ARMY CORPS OF ENGINEERS (USACE)

  ER 1110-1-12 Quality Management

### 1.2. PAYMENT

There will be no separate payment for providing and maintaining an effective Quality Control program. Include all costs associated therewith in the applicable unit prices or lump-sum prices contained in the Contract Line Item Schedule.

## 2.0 PRODUCTS (Not Applicable)

## 3.0 EXECUTION

### 3.1. GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product, which complies with the contract requirements. The system shall cover all design and construction operations, both onsite and offsite, and shall be keyed to the proposed design and construction sequence. The site project superintendent is responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager responsible for the overall construction activities at the site, including quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site.

### 3.2. QUALITY CONTROL PLAN

Furnish for Government review, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Design and construction may begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. The Government will not permit work outside of the features of work included in an accepted interim plan to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started. Where the applicable Code issued by the International Code Council calls for an inspection by the Building Official, the Contractor shall include the inspections in the Quality Control Plan and shall perform the inspections. The Designer of Record shall develop a program for any special inspections required by the applicable International Codes and the Contractor shall perform these inspections, using qualified inspectors. Include the special inspection plan in the QC Plan.

3.2.1. Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all design and construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents subcontractors, designers of record, consultants, architect/engineers (AE), fabricators, suppliers, and purchasing agents:

3.2.1.1. A description of the quality control organization. Include a chart showing lines of authority and an acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. A CQC System Manager shall report to the project superintendent or someone higher in the contractor's organization.

3.2.1.2. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function. Also include those responsible for performing and documenting the inspections required by the International Codes and the special inspection program developed by the designer of record.

3.2.1.3. A copy of the letter to the CQC System Manager, signed by an authorized official of the firm, which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Furnish copies of these letters.

3.2.1.4. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents subcontractors, designers of record, consultants, architect engineers (AE), offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

3.2.1.5. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Use only Government approved Laboratory facilities.

3.2.1.6. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

3.2.1.7. Procedures for tracking design and construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

3.2.1.8. Reporting procedures, including proposed reporting formats.

3.2.1.9. A list of the definable features of work. A definable feature of work is a task, which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

3.2.1.10. A list of all inspections required by the International Codes and the special inspection program required by the code and this contract.

3.2.2. Additional Requirements for Design Quality Control (DQC) Plan

The following additional requirements apply to the Design Quality Control (DQC) plan:

3.2.2.1. The Contractor's QCP Plan shall provide and maintain a Design Quality Control (DQC) Plan as an effective quality control program which will assure that all services required by this design-build contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, competent, independent reviewers identified in the DQC Plan shall review all documents. Use personnel who were not involved in the design effort to produce the design to perform the independent technical review (ITR). The ITR is intended as a quality control check of the design. Include, at least, but not necessarily limited to, a review of the contract requirements (the accepted contract or task order proposal and amended RFP), the basis of design, design calculations, the design configuration management documentation and check the design documents for

errors, omissions, and for coordination and design integration. The ITR team is not required to examine, compare or comment concerning alternate design solutions but should concentrate on ensuring that the design meets the contract requirements. Correct errors and deficiencies in the design documents prior to submitting them to the Government.

3.2.2.2. Include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. Submit these completed checklists at each design phase as part of the project documentation.

3.2.2.3. A Design Quality Control Manager, who has the responsibility of being cognizant of and assuring that all documents on the project have been coordinated, shall implement the DQC Plan This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. Notify the Government, in writing, of the name of the individual, and the name of an alternate person assigned to the position.

3.2.3. Acceptance of Plan

Government acceptance of the Contractor's plan is required prior to the start of design and construction. Acceptance is conditional and will be predicated on satisfactory performance during the design and construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4. Notification of Changes

After acceptance of the CQC Plan, notify the Government in writing of any proposed change. Proposed changes are subject to Government acceptance.

3.3. COORDINATION MEETING

After the Postaward Conference, before start of design or construction, and prior to acceptance by the Government of the CQC Plan, the Contractor and the Government shall meet and discuss the Contractor's quality control system. Submit the CQC Plan for review a minimum of 7 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. The Government will prepare minutes of the meeting for signature by both parties. . The minutes shall become a part of the contract file. There may be occasions when either party will call for subsequent conferences to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4. QUALITY CONTROL ORGANIZATION

3.4.1. Personnel Requirements

The requirements for the CQC organization are a CQC System Manager, a Design Quality Manager, and sufficient number of additional qualified personnel to ensure safety and contract compliance. The CQC System Manager shall provide direction and authority to the Safety and Health Manager, who shall serve as a member of the CQC staff. The CQC System Manager, if qualified and if allowed by Section 00 73 00 may serve as the Safety and Health Manager or it may be a separate position. The CQC organization shall also include personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. Provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Promptly furnish complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation to the CQC organization. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2. CQC System Manager

Identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a BA/BS graduate of an ACCE accredited construction management college program. The CQC system Manager may alternately be an engineering technician with at least 2 years of college and an ICC certification as a Commercial Building Inspector (Residential Building Inspector certification will be required for Military Family Housing projects). In addition, the CQC system manager shall have a minimum of 5 years construction experience on construction similar to this contract. The CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. Assign the CQC System Manager no other duties (except may also serve as Safety and Health Manager, if qualified and if allowed by Section 00 73 00). Identify an alternate for the CQC System Manager in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager but the alternate may have other duties in addition to serving in a temporary capacity as the acting QC manager.

3.4.3. CQC Personnel

3.4.3.1. In addition to CQC personnel specified elsewhere in the contract provide specialized CQC personnel to assist the CQC System Manager in accordance with paragraph titled Area Qualifications.

3.4.3.2. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; **are not intended to be full time, but must be physically present at the construction site during work on their areas of responsibility**; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan. **One person may cover more than one area, provided that they are qualified to perform QC activities for the designated areas below and provided that they have adequate time to perform their duties:**

3.4.4. Experience Matrix

3.4.4.1. Area Qualifications

3.4.4.1.1. Civil - Graduate Civil Engineer or (BA/BS) graduate in construction management with 4 years experience in the type of work being performed on this project or engineering technician with 5 yrs related experience.

3.4.4.1.2. Mechanical - Graduate Mechanical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or engineering technician with an ICC certification as a Commercial Mechanical Inspector with 5 yrs related experience.

3.4.4.1.3. Electrical - Graduate Electrical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or engineering technician with an ICC certification as a Commercial Electrical Inspector with 5 yrs related experience.

3.4.4.1.4. Structural - Graduate Structural Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or person with an ICC certification as a Reinforced Concrete Special Inspector and Structural Steel and Bolting Special Inspector (as applicable to the type of construction involved) with 5 yrs related experience.

3.4.4.1.5. Plumbing - Graduate Mechanical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience, or person with an ICC certification as a Commercial Plumbing Inspector with 5 yrs related experience.

3.4.4.1.6. Concrete, Pavements and Soils Materials Technician (present while performing tests) with 2 yrs experience for the appropriate area

3.4.4.1.7. Testing, Adjusting and Balancing Specialist must be a member (TAB) Personnel of AABC or an experienced technician of the firm certified by the NEBB (present while testing, adjusting, balancing).

3.4.4.1.8. Design Quality Control Manager Registered Architect or Professional Engineer (not required on the construction site)

3.4.4.1.9. Registered Fire Protection Engineer with 4 years related experience or engineering technician with 5 yrs related experience (but see requirements for Fire Protection Engineer of Record to witness final testing in Section 01 10 00, paragraph 5.10, Fire Protection).

3.4.4.1.10. QC personnel assigned to the installation of ~~this~~ the telecommunication system or any of its components shall be Building Industry Consulting Services International (BICSI) Registered Cabling Installers, Technician Level. Submit documentation of current BICSI certification. In lieu of BICSI certification, QC personnel shall have a minimum of 5 years experience in the installation of the specified copper and fiber optic cable and components. They shall have factory or factory approved certification from each equipment manufacturer indicating that they are qualified to install and test the provided products. QC personnel shall witness and certify the testing of telecommunications cabling and equipment.

3.4.5. Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management for Contractors". This course is periodically offered at Associated Builders and Constructors, Inc.. Inquire of the District or Division sponsoring the course for fees and other expenses involved, if any, for attendance at this course.

3.4.6. Organizational Changes

When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5. SUBMITTALS AND DELIVERABLES

Make submittals as specified in Section 01 33 00 ***SUBMITTAL PROCEDURES***. The CQC organization shall certify that all submittals and deliverables are in compliance with the contract requirements.

3.6. CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. The CQC organization shall conduct at least three phases of control for each definable feature of the construction work as follows:

3.6.1. Preparatory Phase

Perform this phase prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

3.6.1.1. A review of each paragraph of applicable specifications, reference codes, and standards. Make a copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field at the preparatory inspection. Maintain these copies in the field, available for use by Government personnel until final acceptance of the work.

3.6.1.2. A review of the contract drawings.

3.6.1.3. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

3.6.1.4. Review of provisions that have been made to provide required control inspection and testing.

3.6.1.5. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

3.6.1.6. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

3.6.1.7. A review of the appropriate activity hazard analysis to assure safety requirements are met.

3.6.1.8. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

3.6.1.9. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

3.6.1.10. Discussion of the initial control phase.

3.6.1.11. Notify the Government at least 24 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. Document the results of the preparatory phase actions by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2. Initial Phase

Accomplish this phase at the beginning of a definable feature of work. Include the following actions:

3.6.2.1. Check work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

3.6.2.2. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

3.6.2.3. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

3.6.2.4. Resolve all differences.

3.6.2.5. Check safety to include compliance with and upgrading of the Accident Prevention plan and activity hazard analysis. Review the activity analysis with each worker.

3.6.2.6. Notify the Government at least 24 hours in advance of beginning the initial phase. The CQC System Manager shall prepare and attach to the daily CQC report separate minutes of this phase. Indicate exact location of initial phase for future reference and comparison with follow-up phases.

3.6.2.7. Repeat the initial phase any time acceptable specified quality standards are not being met.

3.6.3. Follow-up Phase

Perform daily checks to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Conduct final follow-up checks and correct deficiencies prior to the start of additional features of work which may be affected by the deficient work. Do not build upon nor conceal non-conforming work.

3.6.4. Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7. TESTS

3.7.1. Testing Procedure

Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements and project design documents. Upon request, furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory, or establish an approved testing laboratory at the project site. The Contractor may elect to use a laboratory certified and accredited by the Concrete and cement Reference Laboratory (CCRL) or by AASHTO Materials Reference Laboratory (AMRL) for testing procedures that those organizations certify. The Contractor shall perform the following activities and record and provide the following data:

3.7.1.1. Verify that testing procedures comply with contract requirements and project design documents.

3.7.1.2. Verify that facilities and testing equipment are available and comply with testing standards.

3.7.1.3. Check test instrument calibration data against certified standards.

3.7.1.4. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

3.7.1.5. Include results of all tests taken, both passing and failing tests, recorded on the CQC report for the date taken. Include specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. Provide an information copy of tests performed by an offsite or commercial test facility directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2. Testing Laboratories

3.7.2.1. Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2. Capability Recheck

If the selected laboratory fails the capability check, the Government will assess the Contractor a charge of $1,375 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3. Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4. Furnishing or Transportation of Samples for Testing

The Contractor is responsible for costs incidental to the transportation of samples or materials. Deliver samples of materials for test verification and acceptance testing by the Government to the Corps of Engineers Laboratory, f.o.b., at the following address:

- For delivery by mail:

  Commander and Director/ Engineer Research and Deve

  CEERD-GG-S

  3909 Halls Ferry Road, Waterways Experience Statio

  Vicksburg, MS 39180-6199

- For other deliveries:

  N/A

  N/A

  N/A

  N/A

The area or resident office will coordinate, exact delivery location, and dates for each specific test.

3.8. COMPLETION INSPECTION

3.8.1. Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the SPECIAL CONTRACT REQUIREMENTS Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. Prepare a punch list of items which do not conform to the approved drawings and specifications and include in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2. Pre-Final Inspection

As soon as practicable after the notification above, the Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Correct any items noted on the Pre-Final inspection in a timely manner. Accomplish these inspections and any deficiency corrections required by this paragraph within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3. Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall attend the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups and major commands may also attend. The Government will formally schedule the final acceptance inspection based upon results of the Pre-Final inspection. Provide notice to the Government at least 14 days prior to the final acceptance inspection and include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9. DOCUMENTATION

3.9.1. Maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers using government-provided software, QCS (see Section 01 45 01.10). The report includes, as a minimum, the following information:

3.9.1.1. Contractor/subcontractor and their area of responsibility.

3.9.1.2. Operating plant/equipment with hours worked, idle, or down for repair.

3.9.1.3. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

3.9.1.4. Test and/or control activities performed with results and references to specifications/drawings requirements. Identify the applicable control phase (Preparatory, Initial, Follow-up). List deficiencies noted, along with corrective action.

3.9.1.5. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

3.9.1.6. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

3.9.1.7. Offsite surveillance activities, including actions taken.

3.9.1.8. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

3.9.1.9. Instructions given/received and conflicts in plans and/or specifications.

3.9.1.10. Provide documentation of design quality control activities. For independent design reviews, provide, as a minimum, identity of the ITR team, the ITR review comments, responses and the record of resolution of the comments.

3.9.2. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. Furnish the original and one copy of these records in report form to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, submit one report for every 7 days of no work and on the last day of a no work period. Account for all calendar days throughout the life of the contract. The first report following a day of no work shall be for that day only. The CQC System Manager shall sign and date reports. The report shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel. The Contractor may submit these forms electronically, in lieu of hard copy.

3.10. NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

End of Section 01 45 04.00 10

**SECTION 01 50 02.01**
REV 1.3 - 30 APR 2009

**TEMPORARY CONSTRUCTION FACILITIES**

**1.0 OVERVIEW**

1.1. GENERAL REQUIREMENTS

1.3. BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.6. GOVERNMENT FIELD OFFICE

**1.0 OVERVIEW**

1.1. GENERAL REQUIREMENTS

1.1.1. This section contains requirements specifically applicable to this task order. The requirements of Base ID/IQ contract Section 01 50 02 apply to this task order, except as otherwise specified herein.

1.3. BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.3.1. Bulletin Board (As Specified in Base contract)

1.3.2. Project and Safety Signs (Added to Stress standardization of signs, in the event that the Base ID/IQ Section 01 50 02 does not contain this information)

Erect a project sign and a site safety sign with informational details as provided by the Government at the Post award conference, within 15 days prior to any work activity on project site. Update the safety sign data daily, with light colored metallic or non-metallic numerals. Remove the signs from the site upon completion of the project. Engineer Pamphlet EP 310-1-6a contains the standardized layout and construction details for the signs. It can be found through a GOOGLE Search or try http://www.usace.army.mil/publications/eng-pamphlets/ep310-1-6a/s-16.pdf.

1.6. GOVERNMENT FIELD OFFICE

1.6.1. Resident Engineer's Office

Provide the Government Resident Engineer with an office, approximately 200 square feet in floor area, co-located on the project site with the Contractor's office and providing space heat, air conditioning, electric light and power, power and communications outlets and toilet facilities consisting of one lavatory and one water closet complete with connections to water and sewer mains . Provide a mail slot in the door or a lockable mail box mounted on the surface of the door. Provide outlets for 2 government phones and same number of LAN connections for Government computers. Coordinate with the Resident Engineer for locations. Provide a conference room with space large enough for 3 personnel to hold meetings. Provide a minimum of two outlets per government work station and at least one outlet per 10 feet of wall space for other government equipment. Provide at least twice weekly janitorial service. Remove the office facilities upon completion of the work and restore those areas. Connect and disconnect utilities in accordance with local codes and to the satisfaction of the Contracting Officer.

1.6.2. Trailer-Type Mobile Office

The Contractor may, at its option, furnish and maintain a trailer-type mobile office acceptable to the Contracting Officer and providing as a minimum the facilities specified above. Securely anchor the trailer to the ground at all four corners to guard against movement during high winds, per EM 385-1-1.

End of Section 01 50 02.01

# APPENDIX A
# Geotechnical Information

Not Used

# APPENDIX B
## List of Drawings

Not Used

# APPENDIX C
## Utility Connections

Not Used

# APPENDIX D
## Results of Fire Flow Tests

Not Used

# APPENDIX E
# Environmental Information

Not Used

# APPENDIX F
## Conceptual Aesthetic Considerations

Not Used

# APPENDIX G
# GIS Data

Not Used

# APPENDIX H
## Exterior Signage

Not Used

# APPENDIX I
## Acceptable Plants List

Not Used

# APPENDIX J
# Drawings

Not Used

# APPENDIX K
# Fuel Cost Information

The following utility rates for this installation are provided for design

**Electrical:**
Demand Charge - $xx.xx per kilowatt

Energy Charge - $ x.xx per kilowatt-hour Blended Rate - $ x.xx per kilowatt-hour (blended annual energy and demand cost)

**Natural Gas:**
Commodity Charge Rate - $ x.xx per thousand cubic feet

**Water:**
Commodity Charge Rate - $x.xx per [volume]

**Sewer**:
Commodity Charge Rate - $x.xx per [volume]

**Purchased/Central Steam:**
Commodity Charge Rate - $x.xx per [unit of measure]

**Purchased High Temperature Water:**
Commodity Charge Rate - $x.xx per [unit of measure]

**Purchased Chilled Water:**
Commodity Charge Rate - $x.xx per [unit of measure]

## LEED Project Credit Guidance

This spreadsheet indicates Army required credits, Army preferred credits, project-specific ranking of individual point preferences, assumptions guidance for individual credits, and references to related language in the RFP for individual credits.

| LEED 2.2 Credit Paragraph | LEED Project Credit Guidance | **Army Guidance:** Required - Preferred - Avoid | **Project Preference Ranking**: (1=most preferred, blank=no preference, X=preference not applicable to this credit, Rqd=required) | |
|---|---|---|---|---|
| **PAR** | **FEATURE** | | | **REMARKS** |
| **SUSTAINABLE SITES** | | | | |
| SSPR1 | Construction Activity Pollution Prevention (PREREQUISITE) | Rqd | Rqd | All LEED prerequisites are required to be met. |
| SS1 | Site Selection | | X | See paragraph LEED CREDITS COORDINATION for information relating to this credit. |

| | | | | |
|---|---|---|---|---|
| SS2 | Development Density & Community Connectivity - OPTION 1 DENSITY | | X | See paragraph LEED CREDITS COORDINATION for information relating to this credit. |
| | Development Density & Community Connectivity - OPTION 2 CONNECTIVITY | | X | See paragraph LEED CREDITS COORDINATION for information relating to this credit. |
| SS3 | Brownfield Redevelopment | | X | See paragraph LEED CREDITS COORDINATION for information relating to this credit. |
| SS4.1 | Alternative Transportation: Public Transportation Access | | X | See paragraph LEED CREDITS COORDINATION for information relating to this credit. |
| SS4.2 | Alternative Transportation: Bicycle Storage & Changing Rooms | Pref | | Assume that non-transient building occupants are NOT housed on Post unless indicated otherwise. |
| SS4.3 | Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 1 | | | Requires provision of vehicles, which cannot be purchased with construction funds. Assume Government will not provide vehicles unless indicated otherwise. Assume that 50% of GOV fleet is NOT alternative fuel vehicles unless indicated otherwise. |
| SS4.3 | Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 2 | Pref | | |
| SS4.3 | Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 3 | | | Requires provision of vehicle refueling stations. Installation must support type of fuel and commit to maintaining/supporting refueling stations. |
| SS4.4 | Alternative Transportation: Parking Capacity | Pref | | |

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|---|---|---|---|---|
| SS5.1 | Site Development: Protect or Restore Habitat | | | |
| SS5.2 | Site Development: Maximize Open Space | Pref | | Assume AGMBC option for aggregated open space at another location on the installation is not available to the project unless indicated otherwise. |
| SS6.1 | Stormwater Design: Quantity Control | Pref | | See paragraph STORMWATER MANAGEMENT. |
| SS6.2 | Stormwater Design: Quality Control | Pref | | See paragraph STORMWATER MANAGEMENT. |
| SS7.1 | Heat Island Effect: Non-Roof | | | |
| SS7.2 | Heat Island Effect: Roof | Pref | | Coordinate with nearby airfield requirements, which may preclude this credit. |
| SS8 | Light Pollution Reduction | Pref | | |
| | | | | |
| **WATER EFFICIENCY** | | | | |
| WEPR1 | Water Use Reduction (Version 3 only) | Rqd | Rqd | All LEED prerequisites are required to be met. |
| WE1.1 | Water Efficient Landscaping: Reduce by 50% | Pref | | See paragraph IRRIGATION. Project must include landscaping to be eligible for this credit. |
| WE1.2 | Water Efficient Landscaping: No Potable Water Use or No Irrigation | Pref | | Project must include landscaping to be eligible for this credit. |
| WE2 | Innovative Wastewater Technologies - OPTION 1 | | | |
| WE2 | Innovative Wastewater Technologies - OPTION 2 | | | |
| WE3 | Water Use Reduction | Pref | | See paragraph BUILDING WATER USE REDUCTION. |
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|---|---|---|---|---|
| **ENERGY AND ATMOSPHERE** | | | | |
| EAPR1 | Fundamental Commissioning of the Building Energy Systems (PREREQUISITE) | Rqd | Rqd | All LEED prerequisites are required to be met. |
| EAPR2 | Minimum Energy Performance (PREREQUISITE) | Rqd | Rqd | All LEED prerequisites are required to be met. |
| EAPR3 | Fundamental Refrigerant Management (PREREQUISITE) | Rqd | Rqd | All LEED prerequisites are required to be met. |
| EA1 | Optimize Energy Performance | Rqd | 1 | Earning of LEED EA1 points as indicated in paragraph ENERGY CONSERVATION, as a minimum, is required.. |
| EA2.1 | On-Site Renewable Energy | Pref | | See paragraph ENERGY CONSERVATION. |
| EA3 | Enhanced Commissioning | | | The Commissioning Authority may be provided through the Design-Build Contractor only if in accordance with USGBC Credit Interpretation Ruling (CIR) dated 9/15/06. Commissioning Authority activities begin during design phase and continue well beyond beneficial occupancy. Assume Government will not provide CxA post-occupancy activities unless indicated otherwise. |
| EA4 | Enhanced Refrigerant Management | | | |
| EA5 | Measurement & Verification | | | Assume Government will not provide post-occupancy activities unless indicated otherwise. |
| EA6 | Green Power | | X | See paragraph LEED CREDITS COORDINATION for information relating to this credit. |
| | | | | |
| **MATERIALS AND RESOURCES** | | | | |

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|---|---|---|---|---|
| MRPR1 | Storage & Collection of Recyclables (PREREQUISITE) | Rqd | Rqd | All LEED prerequisites are required to be met. Installation provides collection service and outside receptacle needs coordination. |
| MR1 | Building Reuse | | | |
| | | | | |
| | | | | |
| MR2.1 | Construction Waste Management: Divert 50% From Disposal | Pref | | See paragraph CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT. |
| MR2.2 | Construction Waste Management: Divert 75% From Disposal | Pref | | |
| MR3 | Materials Reuse | | | |
| | | | | |
| MR4.1 | Recycled Content: 10% (post-consumer + 1/2 pre-consumer) | Pref | | See paragraph RECYCLED CONTENT. |
| MR4.2 | Recycled Content: 20% (post-consumer + 1/2 pre-consumer) | Pref | | |
| MR5.1 | Regional Materials:10% Extracted, Processed & Manufactured Regionally | | | |
| MR5.2 | Regional Materials:20% Extracted, Processed & Manufactured Regionally | | | |
| MR6 | Rapidly Renewable Materials | Pref | | See paragraph BIOBASED AND ENVIRONMENTALLY PREFERABLE MATERIALS and |

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|---|---|---|---|---|
| | | | | paragraph FEDERAL BIOBASED PRODUCTS PREFERRED PROCUREMENT PROGRAM. |
| MR7 | Certified Wood | Pref | | See paragraph BIOBASED AND ENVIRONMENTALLY PREFERABLE MATERIALS. |
| | | | | |
| **INDOOR ENVIRONMENTAL QUALITY** | | | | |
| EQPR1 | Minimum IAQ Performance (PREREQUISITE) | Rqd | Rqd | All LEED prerequisites are required to be met. |
| EQPR2 | Environmental Tobacco Smoke (ETS) Control (PREREQUISITE) | Rqd | Rqd | All LEED prerequisites are required to be met. Assume all buildings are smoke free unless indicated otherwise. Family housing, barracks and other lodging are facility types where smoking may be permitted in some cases. If Statement of Work indicates smoking is permitted in these types of facilities, the requirements of LEED-NC 2.2 Option 3 apply. |
| EQ1 | Outdoor Air Delivery Monitoring | | | |
| EQ2 | Increased Ventilation | | | |
| EQ3.1 | Construction IAQ Management Plan: During Construction | Pref | | See paragraph CONSTRUCTION IAQ MANAGEMENT. |
| EQ3.2 | Construction IAQ Management Plan: Before Occupancy | Pref | | See paragraph CONSTRUCTION IAQ MANAGEMENT. |
| EQ4.1 | Low Emitting Materials: Adhesives & Sealants | Pref | | See paragraph LOW-EMITTING MATERIALS. |
| EQ4.2 | Low Emitting Materials: Paints & Coatings | Pref | | See paragraph LOW-EMITTING MATERIALS. |
| EQ4.3 | Low Emitting Materials: Carpet/Flooring Systems | Pref | | See paragraph LOW-EMITTING MATERIALS. |

| | | | | |
|---|---|---|---|---|
| EQ4.4 | Low Emitting Materials: Composite Wood & Agrifiber Products | Pref | | See paragraph LOW-EMITTING MATERIALS. |
| EQ5 | Indoor Chemical & Pollutant Source Control | Pref | | System requiring weekly cleaning to earn this credit is not a permitted option for Army projects. |
| EQ6.1 | Controllability of Systems: Lighting | | | |
| EQ6.2 | Controllability of Systems: Thermal Comfort | | | |
| EQ7.1 | Thermal Comfort: Design | | | |
| EQ7.2 | Thermal Comfort: Verification | | | Project must earn credit EQ7.1 to be eligible for this credit. Assume Government will not provide post-occupancy activities unless indicated otherwise. |
| EQ8.1 | Daylight & Views: Daylight 75% of Spaces | Pref | | See paragraph DAYLIGHTING. |
| EQ8.2 | Daylight & Views: Views for 90% of Spaces | Pref | | |
| | | | | |
| **INNOVATION & DESIGN PROCESS** | | | | |
| IDc1.1 | Innovation in Design | | | See paragraph INNOVATION AND DESIGN CREDITS. Assume Government will not provide any activities associated with ID credits. |
| IDc1.2 | Innovation in Design | | | |
| IDc1.3 | Innovation in Design | | | |
| IDc1.4 | Innovation in Design | | | |
| IDc2 | LEED Accredited Professional | Rqd | Rqd | LEED AP during design and construction is required. |
| **REGIONAL PRIORITY CREDITS (Version 3 only)** | | | | See paragraph LEED CREDITS COORDINATION for information relating to this. |

# APPENDIX M
## LEED Owner's Project Requirements

Not Used

# APPENDIX N
## LEED Requirements for Multiple Contractor Combined Projects

Not Used

# APPENDIX O
## LEED Strategy Tables

Not Used

# APPENDIX P

## USGBC Registration of Army Projects

**Typical Registration Procedure**

1. Complete the online registration form (see guidance below) at the USGBC website http://www.usgbc.org/showfile.aspx?documentid=875 and submit it online.
2. Pay the registration fee via credit card (USACE staff: credit card PR&C is funded by project design or S&A funds).
3. The USGBC will follow up with a final invoice, the LEED-online passwords and template information.
4. If you have any questions, the USGBC contact (as of October 08) is:
Courtney Yan, LEED Program Assistant
U.S. Green Building Council
202/587-7180
cyan@usgbc.org

**Completing the Registration Form**

**BEFORE YOU BEGIN:**

**Create a personal account with USGBC if you do not have one.**
**You will need the following information:**
**Project name as it appears in P2 (obtain from USACE Project Manager)**
**Building number/physical address of project**
**Zip code for Installation/project location**
**Total gross area all buildings in project**
**Total construction cost for buildings only (see Project Details Section instructions below)**

**ACCOUNT/LOGIN INFORMATION SECTION**

1. The person registering the project **must have an account with USGBC** (login and password) to complete the form. If you have an account, select “I already have a USGBC Web site account” and enter email and password (twice). If you do not have an account, you may select “Create a new USGBC website account” and follow the instructions. It is recommended that you create an account separately on the USGBC website before you start the form. IMPORTANT: USACE team members are members of USGBC and are eligible for Member prices. USACE team members registering projects should be sure to include the USACE Corporate Access ID on the form (if you do not have it contact richard.l.schneider@usace.army.mil or judith.f.milton@usace.army.mil for the number).
2. The Account/Login Information section is filled out by the person registering the project. It may be a Contractor or a USACE staff member.

**PROJECT TYPE SECTION**

Self-explanatory. As of October 08 USACE projects use LEED for New Construction V2.2. USACE staff members are USGBC members.

**GENERAL PROJECT INFORMATION SECTION**

**Project Title:** Match the project name used in P2. Contact the USACE Project Manager for this information.
**Is Project Confidential:** Indicate NO except if project has security sensitivity (elements that are FOUO or higher security) indicate YES.
**Project Address 1 and 2:** This is the physical location of the project. Provide building number, street address, block number or whatever is known to best describe the location of the project on the Installation.
**Project City:** Installation Name
**State, Country, Zip Code:** Self-explanatory
**How Did You Hear About LEED:** USACE requirement

**PRIMARY CONTACT INFORMATION**

The Primary Contact may be a Contractor or a USACE staff member. USGBC considers this individual the primary point of contact for all aspects of the project. It is recommended this person be the Contractor Project Manager or the USACE Project Manager.

**PROJECT OWNER INFORMATION**

**Project Owner First Name, Last Name, email:** The Project Owner is the USACE Project Manager.
**Organization Name:** U.S. Army Corps of Engineers. This field MUST be completed this way because it will be used as a search field by higher HQ to find all USACE registered projects.

**PROJECT DETAILS**

**Owner Type:** Military Base
**Project Scope:** Provide brief description (example: barracks complex)
**Site Conditions:** Provide brief description (example: wooded with steep grades)
**Occupant Type:** Provide brief description (example: military and civilian employees)
**Owner Occupied:** No
**Gross Square Footage:** Provide total area all buildings in project
**Project Budget:** Do not include the cost for design, site work, demolition, abatement or other work – do not include Government contingency or supervision costs. For design-build and construction projects registered after award, use the awarded contract cost for construction of buildings only. For projects registered prior to award of design-build or construction contract, use the total Primary Facility cost from DD1391 or updated Primary Facility cost based on design development if available.
**Current Project Phase:** Identify phase at time of registration (example: design start, construction start)
**Project Type:** Self-explanatory

**PAYMENT INFORMATION**

Self-explanatory

# APPENDIX Q
# REV 1.1 – 31 MAY 2009
# AREA COMPUTATIONS

**Computation of Areas:** Compute the "gross area" and "net area" of facilities (excluding family housing) in accordance with the following subparagraphs:

**(1) Enclosed Spaces:** The "gross area" is the sum of all floor spaces with an average clear height ≥6′-11″ (as measured to the underside of the structural system) and having perimeter walls which are ≥4′-11″. The area is calculated by measuring to the exterior dimensions of surfaces and walls.

**(2) Half-Scope Spaces:** Areas of the following spaces shall count as one-half scope when calculating "gross area":

- Balconies
- Porches
- Covered exterior loading platforms or facilities
- Covered but not enclosed passageways and walks
- Open stairways (both covered and uncovered)
- Covered ramps
- Interior corridors (Unaccompanied Enlisted Personnel Housing Only)

**(3) Excluded Spaces:** The following spaces shall be excluded from the "gross area" calculation:

- Crawl spaces
- Uncovered exterior loading platforms or facilities
- Exterior insulation applied to existing buildings
- Open courtyards
- Open paved terraces
- Uncovered ramps
- Uncovered stoops
- Utility tunnels and raceways
- Roof overhangs and soffits measuring less than 3′-0″ from the exterior face of the building to the fascia

**(4) Net Floor Area:** Where required, "net area" is calculated by measuring the inside clear dimensions from the finish surfaces of walls. If required, overall "assignable net area" is determined by subtracting the following spaces from the "gross area":

- Basements not suited as office, special mechanical, or storage space
- Elevator shafts and machinery space
- Exterior walls
- Interior partitions
- Mechanical equipment and water supply equipment space
- Permanent corridors and hallways
- Stairs and stair towers
- Janitor closets
- Electrical equipment space
- Electronic/communications equipment space

# RMS SUBMITTAL REGISTER INPUT FORM

CONTRACT NUMBER

DELIVERY ORDER

TITLE AND LOCATION

Button <-----Right click for Instructions

| SECTION | PARAGRAPH NUMBER | DESCRIPTION OF ITEM SUBMITTED | TYPE OF SUBMITTAL | | | | | | | | | | | CLASSIFICATION | | | | | | REVIEWING OFFICE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 01 - PRECON SUBMITTALS | 02 - SHOP DRAWINGS | 03 - PRODUCT DATA | 04 - SAMPLES | 05 - DESIGN DATA | 06 - TEST REPORTS | 07 - CERTIFICATES | 08 - MFRS INSTRUCTIONS | 09 - MFRS FIELD REPORT | 10 - O&M DATA | 11 - CLOSEOUT SUBMITTALS | FIO - FOR INFORMATION ONLY | GA - GOVERNMENT APPROVED | DA - DESIGNER OF RECORD APPROVAL | CR - CONFORMANCE REVIEW | DA / CR | DA / GA | DO - DISTRICT OFFICE | AO - AREA OFFICE | RO - RESIDENT OFFICE | PO - PROJECT OFFICE | DR - DESIGNER OF RECORD | AE - ARCHITECT / ENGINEER |
| 00 72 00 | 52.236-13 | Accident Prevention Plan | X | | | | | | | | | | | | | | X | | | | X | | | | |
| 00 73 00 | 1.11 | Dev. From Accept. Design. No Deviation from Contract | | | | | X | | | | | | | | | | | X | | | X | | | X | |
| 00 73 00 | 1.11 | Dev. From Accepted Design - Deviates from Contract | | | | | X | | | | | | | | | | | | X | | X | | | X | |
| 00 73 00 | 1.17 | Supplemental Price Breakdown | X | | | | | | | | | | | X | | | | | | | X | | | | |
| 00 73 00 | 1.18 | SSHO Qualifications | X | | | | | | | | | | | | X | | | | | | X | | | | |
| 01 10 00 | 5.2.3.1 | (if concrete pavement) Joint Layout Plan with design drawings | | | | | X | | | | | | | | | | X | | | | | | | | |
| 01 10 00 | 5.5.2 | Building Envelope Sealing Performance Testing | | | | | | X | | | | | | X | | | | | | | X | | | | |
| 01 10 10 | *** | Tests as Req by Codes - DOR Develops Test Program | | | | | | X | | | | | | X | | | | | | | X | | | X | |
| 01 10 00 | 5.8.3 | BAS Review Information | | X | | | | | | | | | | | | | | X | | X | X | | | X | |
| 01 10 00 | 5.8.3 | BAS Performance Verification Test | | | | | | X | | | | | | X | | | | | | | X | | | X | |
| 01 10 00 | 5.8.4 | Testing Adjusting and Balancing | | | | | | X | | | | | | X | | | | | | | X | | | X | |
| 01 10 00 | 5.8.5 | Commissioning | | | | | | X | | | | | | X | | | | | | | X | | | X | |
| 01 10 00 | 6.15 | Environmental As Required for Site Specific | | | | | X | | | | | | | | | | X | | | | X | | | X | |
| 01 10 00 | 6.16 | Permits as required for Site specific | | | | | X | | | | | | | | | | X | | | | X | | | X | |
| 01 10 00 | 5.10.2 | Fire Protection Tests | | | | | | X | X | | | | | X | | | | | | | X | | | X | |
| 01 32 01.00 10 | 3.4.1 | Preliminary Project Schedule | X | | | | | | | | | | | | X | | | | | | X | | | | |
| 01 32 01.00 10 | 3.4.2 | Initial Project Schedule | X | | | | | | | | | | | | X | | | | | | X | | | | |
| 01 32 01.00 10 | 3.4.3 | Design Package Schedule | X | | | | | | | | | | | | X | | | | | | X | | | | |
| 01 32 01.00 10 | 3.6.1 | Periodic schedule updates from the Contractor | X | | | | | | | | | | | | X | | | | | | X | | | | |
| 01 32 01.00 10 | 3.7 | Time Extension Request (Schedule) | X | | | | | | | | | | | | X | | | | | | X | | | | |
| 01 33 00 | 1.8 | Submittal Register - DOR Input Required | X | | | | | | | | | | | | X | | | | | | X | | | X | |
| 01 33 00 | 1.8 | Submittal Register Updates (Design Packages, etc.) | X | | | | | | | | | | | | X | | | | | | X | | | X | |
| 01 33 00 | 1.3.1 | Substitution of Manuf or Model Named in Proposal | | X | X | | | | | | | | | | | | | X | | | X | | | X | |
| 01 33 16 | 1.2 | Identify Designer(s) of Record | X | | | | | | | | | | | | X | | | | | | X | | | | |
| 01 33 16 | 1.1.2 / 3.2.4 | Fast Track Design Package(s) | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 1.2 | Identification of all Designers of Record | X | | | | | | | | | | | | | | X | | | | X | | | | |
| 01 33 16 | 3.2.1 | Site and Utility Des Package, incl. Substantiation | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.2.2/3.5 | Interim Des Subm Package(s), incl. Substantiation | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.1 | Drawings | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.2 | Sitework Design Analyses | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.3 | Structural Design Analyses | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.4 | Security Design Analyses | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.5 | Architectural Design Analyses | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.6 | Mechanical Design Analyses | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.7 | Life Safety Design Analyses | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.8 | Plumbing Design Analyses | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.9 | Elevator Design Analyses (as Applicable) | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.10 | Electrical Design Analyses | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.11 | Telecommunications Design Analyses | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.2.12 | Cathodic Protection Design Analyses | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.3 | Geotechnical Investigations and Reports | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.4 | LEED Submittals | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.5 | Energy Conservation Documentation | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.6 | Specifications | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.5.7 | Building Rendering | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.2.4/3.7 | Final Des Submittal Package(s), incl. Substantiation | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.7.5 | DD Form 1354 (Transfer of Real Property) | | | | | | | | | | | X | | | | X | | | | X | | | | |
| 01 33 16 | 3.2.5/3.8 | Design Complete Submittal Package(s) | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | 3.3.3 | Design and Code Review Checklists | | | | | X | | | | | | | | | | X | | | X | X | | | | |
| 01 33 16 | A-2.0 | SID - Interim and Final (as applicable) | | | X | X | X | | | | | | | | X | | | | | | X | | | | |
| 01 33 16 | B-2.0 | FFE (as Applicable) | | | | | X | | | | | | | | X | | | | | | X | | | | |
| 01 45 04.00 10 | 3.2 | Design and Construction QC Plan | X | | | | | | | | | | | | | | X | | | | X | | | | |
| 01 57 20.00.10 | 1.2 | Environmental Protection Plan | X | | | | | | | | | | | | | | X | | | | X | | | | |
| 01 78 02.00 10 | 1.2.1 | Final as-Built Drawings | | | | | | | | | | | X | | X | | | | | | | | | | |
| 01 78 02.00 10 | 1.2.7 | Provide final as-built CADD and BIM Model files | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.2.9 | Provide scans of all other docs in Adobe.pdf format | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.3.1 | Equip-in-Place list of all installed equip and cost | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.3.2 | Data on equip not addressed in O&M manuals | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.3.3 | Final as-built specs - electronic files | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.4.2.1 | Warranty management plan - FAR 52.246-21 | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.4.2.1 | Certificates of Warranty for extended warranty items | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.4.2.1 | Contractor's POCs for implementing warranty process | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.4.2.1 | List of each warranted equip, item, feature or system | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.5 | See also Section 01 10 00 par. 5.8.4 and 5.8.5 | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.6.1.2 | Equipment O&M Manuals - 1 electronic / 2 hard copies | | | | | | | | | | | X | | X | | | | | | X | | | | |
| 01 78 02.00 10 | 1.7 | Field Training DVD Videos | | | | | | | | | | X | | X | | | | | | | X | | | | |
| 01 78 02.00 10 | 1.8 | Pricing of CF/CI and GF/CI Property | | | | | | | | | | | X | X | | | | | | | X | | | | |
| 01 78 02.00 10 | 1.11 | List of Completed Cleanup Items | | | | | | | | | | | X | | | | X | | | | X | | | | |

RMS INPUT FORM 4288A

**Export to RMS in CSV(MS-DOS) (*.csv) Format**

**Note:** Reviewing Office Optional