CHAPTER A-9

COST ESTIMATES

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CHAPTER A-9

COST ESTIMATES

9.1 GENERAL.

9.1.1 Cost Engineering's Mission and Function. The Cost Engineering Branch is responsible for cost estimates for all military, environmental restoration and civil works projects designed by the Savannah District and furnishes estimating support to others. This Branch prepares Value Engineering estimates and acts as a cost consultant to the district. This branch also reviews Contractor's bids on construction projects and makes recommendations for award or rejection. Projects will be designed in U.S. measurements or Metric measurements. The Specific Instructions for the A-E's contract will be provided at the Pre-Design Conference and will define the project as either U.S. or Metric design. When the project is a metric design all units of measure and cost data referenced in this and other documents for this project shall be changed to Metric Units of Measure and Metric Cost Data. This document contains information and instruction for preparing Military, Hazardous Radioactive and Toxic Waste, and Civil projects. In most cases the project will fall into one of these type estimates based on funding sources. The Specific Instructions will define the type of project. The A-E should disregard paragraphs in this document that do not pertain to the type of project in their contract.

9.1.2 Purpose. The purpose of this chapter is to provide specific guidance for the preparation of cost estimates for construction projects. Estimates are prepared for programming, controlling costs during design, evaluating bids, assisting in negotiations, and to serve as a guide in establishing a schedule of payments. Often these estimates are also used to evaluate the reasonableness of the Contractor's proposal for negotiated procurement contracts. As such, estimates must be current, complete, and accurate.

9.1.3 Scope. Estimates shall be based on the most recent and complete design information available and shall follow the format of the appropriate Work Breakdown Structure (WBS). There are three (3) separate Work Breakdown Structures, Military, Environmental Restoration, and Civil Works. The Military WBS shall be used for all vertical building construction whether Military, Environmental Restoration or Civil Works funded. Environmental Restoration projects shall use the Hazardous, Toxic, Radioactive Waste (HTRW) WBS (funded by DERO, Superfund, DOE, etc). The Civil Works WBS shall be used for large earth moving/dredging projects normally funded with non-military funds. The final design estimate shall reflect the expected cost to the Government for performing the work by contract and be prepared in the same careful manner as if the estimator were bidding in competition with prudent, experienced, and well-equipped Contractors. All reasonable costs which a Contractor might be expected to anticipate and include in his proposal shall be included in the Government Estimate. The estimate shall reflect the local labor situation and material prices anticipated or forecast to prevail in the vicinity of the project at the

time the project is scheduled to be constructed. Should any question or doubt concerning procedure arise, Savannah District shall be contacted to obtain explanation and clarification as required.

9.1.4 General Instructions. Savannah District will provide MicroComputer Aided Cost Engineering System MCACES estimating software, "User Manuals," and the current Savannah District Databases to be used in the preparation of the construction cost estimates under this contract. The "MCACES" software, as provided by Savannah District, is commercial software, licensed to Corps of Engineers. It is to be used by Architect-Engineer (A-E) firms under contract to Savannah District in conjunction with the projects being designed. The A-E's Cost Engineer/Estimator/Consultant that will be using the MCACES software shall make an appointment with Savannah District's Cost Engineering Branch to travel to the District Office to obtain a copy of the software and hands-on instructions for using the software, within one (1) month of Notice to Proceed. This appointment shall be coordinated with the District's Project Manager. The A-E shall read and sign the Software User Agreement as provided with the software and user manual. The signee shall be the A-E's point of contact for future releases and updates of software and databases. The Software User Agreement, after being signed, shall be returned as specified in the agreement. The Software, manuals and databases will be provided to the A-E at the above referenced visit to the District Office. A waiver for this required visit may be provided only by written authorization by the Chief of Cost Engineering Branch, Savannah District. See paragraph 9.9 for general instructions and guidance pertinent to the preparation of cost estimates for all submittal levels. It is highly recommended that the A-E's Cost Engineer/Estimator/Consultant successfully completes Certified Formal Training on MCACES version 5.30 or later, before attempting to prepare estimates for Savannah District. Contact the Cost Engineering Branch for additional information on training.

9.1.4.1 System Requirements and Options - The MCACES estimating software required for use in this contract requires the following systems.

9.1.4.1.1 Computer - MCACES runs on IBM PC's, PS/2's, and 100 percent compatible personal computer. The program requires a minimum of 525,288 bites of conventional memory available for program use. Most TRS programs will have to be deactivated to run MCACES unless they can be loaded to run in expanded or extended memory.

9.1.4.1.2 Disk Space - A minimum of 30Mb hard disk and 1.Mb floppy diskette drives are highly recommended.

9.1.4.1.3 Operating System - MCACES runs in conjunction with DOS, Version 3.3 or higher. DOS, Version 6.0 or higher is recommended.

9.1.4.1.4 Expanded or Extended Memory - MCACES can run under DOS and LAN software in 524,288 bytes of available conventional memory. However, significant

performance improvements are achieved if your computer has expanded or extended memory available for program use. This extra memory is used to store and quickly access frequently-used portions of the program. In general, extended memory will provide better performance than expanded memory. The expanded memory manager must be compatible with EMS 3.2 or higher. The extended memory manager must be compatible with XMS 2.0 or higher. MCACES attempts to use up to 768 Kb of each type of memory.

9.1.4.1.5 Mouse - MCACES is designed to be used with or without a mouse.

9.1.4.2 MCACES Gold Tutorial Diskette - The MCACES Gold Tutorial Diskette and Instructions are contained in Enclosure 2. This is provided as information only and may be used by new MCACES users for familiarization and practice exercises.

9.2 **APPLICABLE PUBLICATIONS**.

MCACES Gold Users Manual, Vol. I & II
Military Work Breakdown Structure
Hazardous, Toxic, Radioactive Waste Work Breakdown Structure
Civil Work Breakdown Structure
EI 01D010, Construction Cost Estimates
EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule-Region III (Current Date)
ER 1110-1-1300, Engineering and Design Cost Engineering Policy and Requirements.
ER 1110-2-1302, Engineering and Design Civil Works Cost Engineering.
ER-1110-3-1300, Engineering and Design Military Programs Cost Engineering.
ER-1110-3-1301, Engineering and Design Environmental Restoration Cost Engineering.

9.3 **PRECONCEPT DESIGN SUBMITTAL REQUIREMENTS**.

9.3.1 Preconcept Submittal. No Cost Engineering requirements for this submittal.

9.4 **CODE 3 PROJECT ENGINEERING (PE) Phase ARMY and 10% AIR FORCE PROJECT DEFINITION DESIGN SUBMITTAL REQUIREMENTS**.

9.4.1 Project Engineering (PE) Phase and Project Definition Submittal. When the project is defined as a Project Engineering (PE) Phase authorized under a design directive “Code 3" the Cost Engineering Requirements will be defined in the Specific Instructions for that project. See EXHIBIT A-9-17 for A-E Contract Submittal Registry.

9.5 **CONCEPT/EARLY PRELIMINARY (35 PERCENT), S3 and S4 MEDICAL FACILITIES, and DESIGN BUILD DESIGN SUBMITTAL REQUIREMENTS**.

9.5.1 General. The concept estimate shall be prepared in accordance with the following general instructions.

9.5.1.1 The concept estimate shall be a MCACES Gold Estimate generated on the software furnished for use under this contract and the format of the estimate shall follow the appropriate Work Breakdown Structure. For the term of this contract the acronym MCACES shall mean computer generated estimate by MCACES Software, Databases and Work Breakdown Structure (WBS) provided by Savannah District in accordance with the instructions contained herein.

9.5.1.2 General. The concept estimate will be used to program funds for the respective project. Frequently these funds, once appropriated, cannot be increased. It is, therefore, imperative that this estimate includes costs for every item that will be in the project. The A-E must be absolutely certain that the project can be built for the CWE shown on the concept estimate. During the design period, close cost control, consisting of coordination between designer and cost engineer, shall be exercised to achieve an accurate estimate.

9.5.2 Requirements. The concept estimate shall be prepared in accordance with the following instructions. In addition to the following instructions, the A-E shall read and comply with paragraph 9.17. See EXHIBIT A-9-17 for A-E Contract Submittal Registry.

9.5.2.1 The MCACES Software shall be installed as provided following all instructions. The A-E shall work through the MCACES Software Manual, Vol I, and become familiar with the program. The A-E shall use the installation instructions provided separately with the software and not the installation instructions in the manual. Some of the databases provided are in a "Protected Mode" and the user cannot edit these databases. Once items from these databases are brought into the project, they may be edited to reflect conditions for that project. Specific Project Templates are provided by CESAS-EN-C and shall be used to create the project. See paragraph 9.17 for details. The Project Templates provided already have the structure set so skip chapters 2, 5, 10, 11, 13, 20, 22, 24, and 25. Working Appendix A, "Learning Gold," will help in getting familiar with the software. You should skip Lesson 2 as the project structure is predetermined for the project.

9.5.2.2 The list of subcontractors located under the Prime Contractor in the Project Information Record within the MCACES Project Template are defaulted from the Unit Price Database. The Savannah District acknowledges the fact that there can be more or fewer subcontractors than those indicated, depending on the size and/or type of project being designed. There can also be several different subcontractors within a system, such as carpeting contractors and painting contractors within WBS System 06 - Interior Finishes. These subcontractors shall be broken out and defined in the Project Information Record within the MCACES estimate.

9.5.2.3 Prepare a quantity take-off, using EXHIBIT A-9-7 as a guide, as described in paragraphs 9.11 through 9.11.2.7 of this manual. The estimator shall note all assumptions as to scope and design used in preparation of the estimate. These assumptions shall include WBS systems contained within the project. Proper allowances shall be made for WBS system and subsystems not completely determined in the drawings, outline specifications or design analysis. Ref. paragraph 9.11 for additional instructions.
9.5.3 Design Build Requirements. The Design Build Concept estimate shall be prepared in accordance the instructions in paragraphs 9.5.2.1 through 9.5.2.3 above and the following general instruction. In addition the AE shall ask about Project Specific Instruction for the project which may contain additional or alternate requirements.

9.5.3.1 The cost estimate for this project submittal shall be a MCACES estimate prepared using the Military Work Breakdown Structure. As a minimum the Primary Facilities shall be estimated down to the System Level (Level 3) complete to the 1.5M building line unless changed by the Project Specific Instructions. The Support Facilities outside the 1.5M line shall be estimated down to the Assembly Level (Level 6) with details at Level 7 and to the same degree of detail as reflected in EXHIBIT A-9-16, SAMPLE CONCEPT/DESIGN BUILD ESTIMATE. The estimate shall be created from Savannah District Databases using the SAS Project Templates. Reference paragraph 9.12.3.1.1 Military Estimate Hierarchy.

9.6 **SIXTY PERCENT (60 PERCENT) DESIGN SUBMITTAL REQUIREMENTS**. The 60 percent requirements for preparation of cost estimates are the same as the requirements listed below for the Preliminary (60 Percent) Design Submittal Requirements.

9.7 **PRELIMINARY (60 PERCENT), and S5 MEDICAL FACILITIES DESIGN SUBMITTAL REQUIREMENTS**.

9.7.1 General. Cost estimates for all construction projects shall be a MCACES type estimate generated by "MCACES" Software and prepared in accordance with instructions contained herein and in accordance with EXHIBITS A-9-1 through A-9-13 of this manual.

9.7.2 Requirements. The preliminary estimate shall be prepared in accordance with the following instructions. In addition to the following instructions, the A-E shall read and comply with paragraph 9.17. See EXHIBITS A-9-1 through A-9-13 of this manual.

9.7.2.1 Prepare a quantity take-off, in accordance with appropriate Work Breakdown Structure (WBS), using reference paragraph 9.1.3. Specific requirements are described in paragraphs 9.11 through 9.11.2.7 of this section. The estimator shall show all assumptions as to scope and design used in the preparation of the estimate. These assumptions shall include WBS systems contained within the project. Proper allowances shall be made for WBS systems and subsystems not completely determined in the

preliminary drawings, outline specifications or design analysis. Reference paragraph 9.11 for additional instructions.

9.7.2.2 In addition to the quantity take-off, the A-E's shall submit a list of the principal items of equipment (such as cranes, elevators, kitchen equipment, pumps, compressors, unit heaters, air conditioners, fans, etc.), indicating the name of manufacturers and positive identification of items selected.

9.7.2.3 Special attention shall be given to the evaluation of the item General/Prime Contractor's Indirect Costs. These cost items are explained in detail later in this manual, see paragraph 9.13. An itemized list of field overhead indirect costs shall be prepared as part of the preliminary, final and corrected final submittals.

9.7.2.4 The A-E shall use the profit weighted guide to prepare a detailed profit for the prime Contractor and major subcontractors, see EXHIBIT A-9-6, also see paragraph 9.14.

9.8 **FINAL (100 PERCENT), S6 and S7 MEDICAL FACILITIES DESIGN SUBMITTAL REQUIREMENTS**.

9.8.1 General. Final design cost estimates for all construction projects shall be a MCACES type estimate generated by MCACES and prepared in accordance with instructions contained herein and in accordance with EXHIBITS A-9-1 through A-9-13 of this manual.

9.8.2 Requirements. The final estimate shall be prepared in accordance with the following instructions. In addition to the following instructions, the A-E shall read and comply with paragraph 9.17.

9.8.2.1 Prepare a Plan of Construction that is consistent with the requirements of the specifications and in accordance with the current construction practice. See the sample plan on page B-4 of EI 01D010 for instructions on how to prepare this plan.

9.8.2.2 A complete and detailed quantity take-off, prepared in accordance with paragraphs 9.11 through 9.11.2.7 of this section, and accompanying cost estimate shall be submitted with the final design. The quantity take-off and cost estimate shall be an accurate representation of the completed design submitted.

9.8.2.3 In addition to the quantity take-off the A-E's shall submit a list of the principal items of equipment (such as cranes, elevators, kitchen equipment, pumps, compressors, unit heaters, air conditioners, fans, etc.) and any specialty items (such as glazed acrylic canopies, metal pan ceilings, etc.) indicating the name of manufacturers and positive identification of items selected. Price quotations on all items listed above and on all other large dollar items in the estimate will be submitted as part of the estimate backup.

9.8.2.4 An itemized detailed list of indirect costs shall be part of the final design estimate, see paragraph 9.13 this chapter.

9.8.2.5 The A-E shall use the profit weighted guide to prepare a detailed profit for the prime Contractor and major subcontractors, see EXHIBIT A-9-6.

9.9 **CORRECTED FINAL DESIGN SUBMITTAL REQUIREMENTS**.

9.9.1 Notice. Corrected final submittals are not considered a normal design level and are required only when final submittals must be revised or corrected due to error or omission.

9.9.2 When To Submit. The A-E shall submit a corrected final estimate if any design revisions have been made since the final submittal that will in any way affect the cost of the project. This estimate shall be prepared utilizing all the above described instructions and incorporating all the corrections, revisions, final design comments, etc., made to the design since the final design submittal. All changes to the estimate shall be described and identified in the PROJECT NOTES, see EXHIBIT A-9-9. This estimate will be submitted in duplicate with the corrected final design submittal. See EXHIBIT A-9-16 for A-E Contract Submittal Registry.

9.10 **GENERAL INSTRUCTIONS**.

9.10.1 Additional Instructional Publications. Cost estimates for all construction projects shall be prepared in accordance with the instructions and exhibits outlined within this manual and instructions within EI 01D010 "Engineering Instructions – Construction Cost Estimates", the Work Breakdown Structures and MCACES Users Manual.

9.10.2 Cost Estimate Overruns. It is the A-E's responsibility to design the project so that the CWE is equal to or less than 95 percent of the programmed amount. However, if for some reason beyond the A-E's control the project should exceed 95 percent of the programmed amount, the A-E shall submit the following: (1) the cost estimate showing a base bid that is equal to or less than 95 percent of the programmed amount; (2) a list of additives; and (3) a written narrative explaining the reasons why the CWE exceeds 95 percent of the programmed amount. A written narrative shall also be submitted whenever the current estimate has changed more than 5 percent (plus or minus) from the previous estimate. In the case of the concept estimate, variations of 5 percent from the DD Form 1391 shall be explained in narrative form.

9.10.3 Failure to Comply with Procedures. Failure of the A-E to conform to the procedures outlined within this or referenced manuals will result in the estimate being rejected and shall be resubmitted with deficiencies corrected. If time is a factor, the A-E

shall come to Savannah District within 48 hours for a face-to-face meeting and may be required to furnish a corrected cost estimate before leaving the Savannah District office.

9.10.4 Cover Sheet Checklist. The checklist shown as EXHIBIT A-9-1 shall be filled in and used as the cover sheet for each cost estimate submittal. Access to each estimate and its contents shall be limited to those persons whose duties require knowledge of the estimate. Each submittal shall include a list of individuals' names who have access to the total amount of the estimate. Reference EXHIBIT A-9-2 "CWE ESTIMATE SIGNATURE SHEET."

9.10.5 Estimates With More Than One Line Item. When the A-E design contract includes more than one "Line Item Number," preparation of a separate detailed cost estimate and associated summaries for each line item is mandatory on all submittals.

9.10.6 Proposed Bidding Schedule. The A-E shall submit a proposed Bidding Schedule, see EXHIBIT A-9-10, with each submittal. Note the additives broken out from the base bid items. This schedule shall list all primary facilities separately (Building complete to 5 feet outside the building) and support facilities following the WBS format.

9.10.7 Design Stage Identification. All sheets of the cost estimate and quantity take-off shall be clearly marked as to the design stage (concept, preliminary, final, etc.) the estimate represents. The design stage identity shall be entered in the "REPORT TITLE" field of the "PRINT SELECTED REPORTS" entry screen from the REPORT Menu of MCACES Software. (Reference Fig. 23.6: page 23-19 MCACES Gold Software Manual, Vol I.)

9.10.8 Copy Requirements. The summary and detailed cost estimate, quantity take-off sheets and all other exhibits and/or information required by this or referenced manuals shall be submitted in triplicate on 8-1/2" x 11" bound sheets. This shall be done for all submittal levels including modification estimates. Electronic copies of the project database shall be provided for all submittals. This database shall be "SAVE TO COMPRESSED" (floppy diskettes) from the SERVICES menu of the MCACES Software. (Reference paragraph 24.4, page 24-6 MCACES Gold Software Manual, Vol I.)

9.10.9 Budgetary Data. The budgetary data furnished to the A-E is not to be considered restrictive. The A-E is totally responsible for good economical design in development of the site and functional arrangements of the facility. The District shall be notified of any proposed changes as soon as the need for the change has been firmly established.

9.10.10 Basis for Budgetary Data. Budgetary Data will be based on requirements established in the Project Development Brochure, in judgements made after acquisition and evaluation of essential engineering field information, and on subsequent design to the extent that it has been accomplished.

9.10.11 Plan of Construction. A plan of construction will be submitted as a part of the support to the estimate with each cost estimate submittal. The plan of construction shall be prepared in accordance with current construction practices and shall be consistent with the requirements of the plans and specifications. The plan shall include the full period from the beginning of mobilization to and including cleanup and final acceptance of the work by the Contracting Officer. An example of a plan of construction is shown on page B-4 of EI 01D010.

9.11 **TYPED SUMMARY ESTIMATES**.

9.11.1 Preparation of Typed Summary Estimates. EXHIBIT A-9-5 shows an example of a typed summary format. This summary estimate shall be prepared for all concept, preliminary, final and corrected final submittals. The typed summary format shall be completed in accordance with instructions contained below:

9.11.1.1 Use a price level of present day contract costs. The cost summary shall be escalated, see EXHIBIT A-9-5, to the midpoint of construction. Army and/or Air Force escalation factors will be provided by the Cost Engineering Branch, Savannah District.

9.11.1.2 The estimated construction time, in calendar days, for the total project shall also be shown. Calendar days are entered in the "EST CONSTRUCTION TIME" field of the "REPORT TITLE PAGE" screen from the REPORTS Menu. (Reference Figure 23.4: Page 23-13 MCACES Gold Software Manual, Vol. I.)

9.11.1.3 EXHIBIT A-9-5 shows Contingencies at 2 percent of the Escalated Contract Cost, SIOH at 6 percent of the subtotal of the Escalated Contract Cost and Contingencies and OCE Contingencies at 3 percent of the Escalated Contract Cost (ECC). These percentages are for use with MCA funded projects only. All OMA funded projects will use a l0 percent contingency factor, a 7.5 percent SIOH factor and a 0 percent OCE Contingency factor. The above percentages are entered on the "EDIT OWNER" entry screen located from the TITLE LEVEL where owner cost is set. (Reference Figure 7:4, page 7-20, MCACES Gold Software Manual, Vol. I.)

9.11.2 Location Of Typed Summary In Submittal Package. Reference page 5-2 of TM 5-800-2 for correct location in the estimate composition.

9.12 **QUANTITY TAKE-OFF**.

9.12.1 General. The following are general instructions emphasizing the new required Work Breakdown Structure and the importance of the quantity take-off and the personnel authorized to prepare/review this information. When the project is Metric Design the quantity take-off shall be metric.

9.12.1.1 The importance of accurate and concise quantity take-off to the estimate cannot be over stressed. The following procedures and exhibits must be followed in order for the A-E to have an acceptable cost estimate. If a spot check of quantities by the District reveals inaccuracies or the required format has not been used in the preparation of the estimate, the estimate will be rejected and must be resubmitted with the deficiencies corrected. The quantity take-off is required to follow one of the following Work Breakdown Structures (WBS).

9.12.1.1.1 The Military WBS as provided by Savannah District shall be used on all Military Construction Projects (MCP) projects. The Military WBS provides a common Tri-Service framework for preparing cost estimate, modeling development, and collecting historical data for all conventional MCP projects. This Military WBS is a hierarchical structure comprised of six levels: 1) Primary/Supporting Facility; 2) Facility; 3) System; 4) Subsystem; 5) Assembly Category; 6) Assembly, and followed by line item detail. Each system is divided into one or more subsystems which are further divided into assembly categories, then assemblies. Assemblies are made up of construction line items. The System, Subsystem, and Assembly Category Titles are rigidly defined and shall not be changed. An Assembly is a collection of individual cost items that function together as a single building/construction unit. For example, a 300 mm (12-inch) storm drainage line consists of excavation, backfill, compaction, layer of drainage gravel, 300 mm (12-inch) concrete pipe, etc. One unit of an assembly contains a specified quantity and unit of measure of each included item. The Assembly has its own unit of measure. When the assembly is "linked" and the assembly quantity is changed all included item quantities are changed proportionately. Assemblies shall be created for building/construction systems as required by the project. In no case shall the WBS title descriptions be changed for levels three through five. New titles for Subsystems or Assembly Categories shall be entered under the "Other" category. See the Military WBS. Note that the 01 through 15 Systems are for the interior of the building (5-foot line outside the building) and System 16 Selective Building Demolition fall under Primary Facilities. Systems 17 through 20 are exterior systems and fall under Support Facilities.

9.12.1.1.2 HTRW (Hazardous, Toxic, or Radioactive Waste) Environmental Restoration Projects shall use the HTRW WBS as provided by Savannah District. The HTRW WBS provides the framework for preparing cost estimates, modeling development, and collecting historical data for all remediation projects. This HTRW WBS is a hierarchial structure comprised of six levels: 1) Bid Items; 2) Main Feature; 3) Sub-Feature, 4) Element; 5) Sub-Element; 6) Assembly, and followed by the line item detail. The Feature, Sub-Feature, Element, and Sub-Element Titles are rigidly defined and shall not be changed. The Assembly Titles are user defined and created. As a minimum, all estimates shall be prepared to the sixth level followed by detail. The quantity take-off shall be prepared following the WBS to the same level. Level six shall be created to further break down systems of work into Assembly Categories and Assemblies, respectively. Six levels of

titles shall always be created and Detail entered at level seven even if titles are duplicate titles. Example:

LEVEL 01 01 Bid Item No. 1
LEVEL 02 33 HTRW Remedial Action
LEVEL 03 06 Groundwater Collection and Control
LEVEL 04 07 Pumping/Collection
LEVEL 05 03 Piping LF
LEVEL 06 01 {USER CREATED TITLE} '4" PVC Treatment Line' LF
LEVEL 06 02 {USER CREATED TITLE} '6" PVC Treatment Line' LF
LEVEL 06 03 {USER CREATED TITLE} '8" PVC Treatment Line' LF

New titles for work not covered in title levels two through four in the WBS may be added under numbers 90 through 99. Maintaining this rigid structure for the first four levels will allow systematic collection of historical HTRW costs. Any vertical building construction required within the HTRW project shall be a separate estimate from the environmental work and shall follow the Military WBS. HTRW projects may have two distinct phases; construction of a treatment facility and operation and maintenance of the facility over a period of time that may range from months to years. Construction and operation wage rates, escalation rates, and other cost may be different for construction vs. long-term plant operation. Therefore, construction cost will be prepared in a separate estimate from the operation costs. Depending on the project scope, it is possible the A-E will be required to prepare three (3) separate estimates for each submittal. One of the vertical building construction, one for the HTRW construction, and one for plant operations.

9.12.1.1.3 The Civil Projects shall use the CIVIL WBS as provided by Savannah District. The CIVIL WBS provides the frame work for preparing cost estimates, modeling development, and collecting historical data for all civil projects. This CIVIL WBS is a hierarchial structure comprised of six levels: 1) Main Feature; 2) Sub-Feature; 3) Element; 4) Sub-Element; 5) Assembly Category; 6) Assembly, fallowed by the line item detail associated with each Assembly. The Feature, Sub-Feature, Element, and Sub-Element Titles are rigidly defined and shall not be changed. The Assembly Category and Assembly Titles are user defined and created. As a minimum, all estimates shall be prepared to the sixth title level followed by detail. The quantity take-off shall be prepared following the WBS to the same level. Levels five and six shall be created to further break down the work into Assembly Categories and Assemblies respectively. Six levels of titles shall always be created and Detail entered at level seven, even if titles are duplicate titles. Example:

LEVEL 01 07 Power Plant
LEVEL 02 03 Accessory Electrical Equipment
LEVEL 03 82 Conduit System
LEVEL 04 16 Electrical

LEVEL 05 01 {USER CREATED TITLE} Lighting & Branch Wiring
LEVEL 06 01 {USER CREATED TITLE} Plant Lighting Branch Circuits, LF
LEVEL 06 02 {USER CREATED TITLE} Plant Lighting Fixtures, LF
LEVEL 06 03 {USER CREATED TITLE} Plant Power Branch Circuits, LF

Assemblies for civil projects are often unique to the project and cost items in the Unit Price Database may not be adequate. Assemblies can be created in the project by using CREWS as Assemblies. See paragraph 6.6, page 6-29 of the MCACES Users Manual. Using Crews as Assemblies shall be entered at the Assembly Title, Level 6 of the project. Once a crew is pulled into the project as an assembly the members of the crew assembly may be adjusted by adding to or editing the individual members. Totally unique Crews shall be created as above by pulling individual labor and equipment members into the Crew Assembly directly from the Labor and Equipment Databases. Crew calculations showing how the productivity, cycle time, durations and all other calculations and assumptions use to develop the Crew shall be provided with each submittal. This information can be entered into the project electronic database or provided on back up sheets and referenced in the Assembly Title Notes. New titles for work not covered in title levels tow through four in the WBS may be added under numbers 90 through 99. Maintaining this rigid structure for the first four levels will allow systematic collection of historical CIVIL costs. Any vertical building construction required within the CIVIL project shall be a separate estimate from the civil work and shall follow the Military WBS. Depending on the project scope, it is possible the A-E will required to prepare two (2) separate estimates for each submittal. One for the vertical building construction and one for the Civil construction.

9.12.1.2 The quantity take-off and cost estimate shall be treated in a confidential manner and only those personnel concerned with the preparation and/or review of the project shall have access to it. The cost estimates will be utilized in preparing Government estimates for evaluating bids and shall become classified as "FOR OFFICIAL USE ONLY." Such material cannot be divulged to other than accredited Government personnel with a need to know. Information contained within estimates shall not be divulged to prospective bidders. Parametric measurement(s), such as lump sums, building cost by square feet of area, etc., for preliminary and final estimates are not permissible and estimates utilizing such will be rejected.

9.12.2 Requirements. The quantity take-off shall be prepared in accordance with the following instructions.

9.12.2.1 Prepare a quantity take-off following the appropriate Work Breakdown Structure (WBS) showing all quantities used in the estimate (see Quantity Take-Off Examples, EXHIBIT A-9-7). The A-E may prepare his quantity take-off on similar suitable forms. See EXHIBIT A-9-8, Quantity Take-Off Blank Forms. Blank forms are provided and may be copied for use by the A-E. Quantity take-offs shall not be written on the drawings themselves. The quantity take-off shall be prepared in a manner that is clearly legible,

indicating the calculations involved in determining the quantity and any assumptions the estimator has made in determining the quantity. The take-off shall contain back-up or supporting sheets showing breakdown for all quantities of all materials contained within the design drawings and/or specifications.

9.12.2.2 The top of each quantity take-off sheet shall contain the following information: 1) project information; 2) the design stage; 3) the plate number and/or specification number from which the quantity was derived; 4) facility name, quantity, and UOM; 5) WBS code where the quantity is located in the cost estimate; 6) the date and signature of the estimator who prepared them as well as the initials of the estimator who checked them.

9.12.2.3 The quantity take-off for each building and/or structure shall show quantities of materials to a line 5 feet outside the building line. Include site preparation and grading for the building area within this line. Make computations of earthwork quantities for site grading, roads, drives, etc., by the use of cross sections. Cross sections of earthwork quantities shall be prepared and submitted with the quantity take-off sheets at concept, preliminary and final design submittals. Copies of the cross sections shall be submitted with the concept and preliminary designs, while the originals will be submitted at the final design submittal.

9.12.2.4 The quantity take-off shall include, where applicable, doors and windows broken out by size and type. Hardware shall be broken out by number of sets. Within each set, the item and hardware number shall be listed. See EXHIBIT A-9-7.

9.12.2.5 Price quotations on all principal items of equipment (such as cranes, elevators, kitchen equipment, pumps, compressors, unit heaters, air conditioners, fans, etc.) and any specialty items (such as glazed acrylic canopies, metal pan ceilings, etc.) and on all other large dollar items in the estimate shall be submitted as part of the estimate backup. When the project is a Metric Design the A-E shall submit a list of all hard metric items. These price quotations shall include the name of manufacturer and the date, name, address, and phone number of the company supplying the quote. Price quotations shall contain the name of the company representative who supplied the quote and the time range for which the quote remains valid.

9.13 **WAGE RATES.**

9.13.1 Wage Rate Calculations. Wage rates to be used in preparing the construction cost estimate will be provided to the A-E by the Cost Engineering Branch, Savannah District. The AE shall review the rates provided for their project for any inaccuracy in reflecting the most current wage rate conditions and call Cost Engineering Branch, Savannah District to report any inaccuracy. The wage rate database provided reflects rates for a 40-hour construction week and does not take into consideration any abnormal circumstances such as working in secure areas, working in hazardous waste areas, or construction schedule

requiring overtime or shift work, etc. The A-E shall be responsible for addressing any abnormal circumstances required by the project and making corrections to the database rates provided, reference Chapters 5 and 6 of EI 01D010.

9.13.2 Estimate Submittal. Before each submittal the AE shall contact Cost Engineering Branch and request the most current labor rates for their project location. If the project requires the A-E to make changes to the Labor Database provided, the A-E shall use the copy command from the "SERVICES MENU" to copy the Labor Databases provided to a new Labor Database. The identification of the new Labor Database shall match the six-character code used for the project ID. The New Labor Database shall be edited to reflect required changes to wage rates. An explanation of changes to the Labor Database shall be entered in a separate paragraph of the PROJECT NOTES. A printed copy of the wage rates used in the project will accompany each estimate submittal. If a new Labor Database is created, it shall be saved when saving the project database to compressed floppy diskette.

9.14 **INDIRECT COSTS (OVERHEAD).**

9.14.1 Indirect Costs Categories. Indirect costs are divided into two categories, Field Overhead and Home Office Overhead (G & A). Each cost estimate requires an itemized breakdown of the job indirect costs considered necessary for the project.

9.14.2 Prime Contractor's Overhead. Itemized field overhead items for the prime Contractor shall be estimated in detail for all projects based on working knowledge of the project and the anticipated construction period. A Generic Itemized Overhead (contained in the project template) will be provided by the Cost Engineering Branch, Savannah District as a starting place for the A-E. The A-E shall edit this itemized overhead to fit the specific project. Items not applicable to this project shall be deleted and new items shall be added as required. See paragraph 9.17.6.3.3 for MCACES instructions. Use of past experience project overhead percentage is considered acceptable only for those estimates in concept design or earlier where items must be estimated by experienced unit prices. Home office costs are typically included in Government estimates as an average experienced percentage rate of the expected contract amount. It is important to understand that home office costs are not standard and fixed. The rate for a specific Contractor varies from period to period. It is a function of total home office costs divided by the total volume of business during a specific period. A reasonable average range of rates for estimating is from 2 percent for larger to 7 percent for smaller Contractors. The amount of G & A is computed by multiplying the selected percentage by the sum of the total direct cost plus field overhead. The Home Office Overhead shall be entered in the "Home Office Percent" field on the same entry screen.

9.14.3 Subcontractor's Field Overhead. A subcontractor's overhead usually bears a fairly stable relationship to the subcontractor's portion of the work and can be estimated on a percentage basis. However, detailing of subcontractor's overhead costs will be required

for those projects where subcontracted work has unique requirements or where the cost impact of the subcontracted item is 25 percent or more of the total project direct cost. These percentages shall be used to determine when itemized overhead on subcontracted work is required and in assigning the weighted guide line factors to the Contractor's profit.

9.14.4 Typical Field Overhead Items. Paragraph 10-2 of EI 01D010, lists typical items of indirect costs. This list is to be used as a guide for evaluating particular project requirements along with the Generic Itemized Overhead provided.

9.15 **PROFIT.** Allocation for Profit in Cost Estimates. The estimate will include allowances for prime Contractor's and subcontractor's profit. For the prime Contractor and all subcontractors the rates for profit shall be determined by the weighted guideline method. Chapter 11 " PROFIT" of EI 01D010 describes the weighted guideline method and it use. The applicable factors for use in preparing this form are shown as EXHIBIT A-9-6. The reason for the A-E selecting each factor shall be determined in the "Notes" of each Contractor.

9.16 **BOND.**

9.16.1 Allocation for Bond in Cost Estimates. The costs of performance and payment bonds will be included in the estimate. The rates shall be calculated using Class B bond. See paragraph 9.17.6.3 for setting instructions.

9.17 **SUBCONTRACT WORK.**

9.17.1 Use of Subcontractors In Cost Estimate. Estimates will be prepared for subcontractor work using the same methodology and degree of detail as outlined for the general Contractor. The cost of subcontracted work is the amount charged by the subcontractor for the work performed, including costs for direct labor, materials, equipment, and second tier subcontracts as well as his charges for overhead and profit.

9.17.2 Use of Subcontractor Quotations. <u>The Government Estimate will be prepared initially independent of subcontract quotations</u>. When subcontract quotations are obtained and validated, they may then be used to verify the reasonableness of the estimated subcontract work.

9.18 **TECHNICAL INSTRUCTIONS FOR MCACES ESTIMATES.**

9.18.1 Estimate Format. The format of all estimates shall follow the appropriate WBS (Military, HTRW, Civil) for the type estimate being created. (Reference paragraph 9.11.1.1.1 and 9.11.1.1.2.) The appropriate WBS will be provided by Savannah District. The WBS should be studied in detail by all persons preparing the quantity take-off and the estimate. The WBS drives the way the quantity take-off will be prepared. When the

project is a Metric Design the estimate shall be prepared using metric units of measure and the pricing representative of metric units of measurement. All software, project templates, and databases will be in metric and will be provided by Savannah District for use in preparing a metric estimate. Databases and Templates provided will have different ID's than referenced in this document, but will contain the same type information and estimate format, only in metric.

9.18.2 MCACES Software and Databases. The MCACES software and databases will be provided by Savannah District along with instructions for installing. All databases unique to Savannah District will have an ID that begin with the first three characters "SAS" (South Atlantic Savannah). The Models, Assembly, Crew, Equipment, and Unit Price Book Databases all begin with SAS identification and shall be used on all projects unless otherwise directed. All labor, equipment, and material cost provided in these databases are a pricing guide only. It is the A-E's responsibility to check and verify pricing used in his estimate. All databases are compressed to floppy diskettes and can be loaded from within the MCACES software using "Load From Compressed" on the SERVICE Menu. All floppies identified as databases shall be loaded into the \GOLD\DATA\ directories. All databases provided are FOR OFFICIAL USE ONLY and shall be protected accordingly.

NOTE: Load From Compressed - When using this command you are presented with a list of available databases to load for the Directory/Path you indicated. To select a database use the Up/Down Arrow keys to highlight the database you want to load and press the [Space Bar]. This will place a check mark to the left of the database. This can be repeated for any or all databases. After marking the databases you want loaded press the [Enter] key to start the process.

9.18.2.1 Labor Rates Databases. Labor databases for locations under Savannah District are provided on a Labor Rates floppy diskette. Select to load only the rates applicable to the project location. See paragraph 9.12 for information about labor rates and any required changes to rates. NOTE: Using the localized LABOR RATES database will put the correct labor and unit cost into the project. As the items of work are brought into the project database they are repriced with the currently selected LABOR, EQUIPMENT, and UPB (material only) databases. The labor and unit cost shown in the UPB, CREW, and ASSEMBLY databases will not show the same cost when brought into the project because these databases have not been repriced to the localized LABOR RATES database.

9.18.3 Templates and Sample Projects. Savannah District provides a Templates and Sample Projects floppy diskette containing compressed project templates and sample projects. This diskette contains Sample Projects to review the required format for the types of estimates prepared by the Corps of Engineers, (ie. Civil, Military, and Hazardous, Toxic, and Radioactive Waste). It also contains specific project Templates for each type of estimate. The appropriate project template shall be used to start the respective projects. All databases are compressed to floppy diskettes and can be loaded from within the

MCACES software using "Load From Compressed" on the SERVICE Menu. All floppies identified as Projects (Templates/Samples) shall be loaded into the \GOLD\PROJECT\ directories.

9.18.3.1 Military Templates. For Military Estimates the "SASMIL" Template shall be used to create the estimate format. Use "Load From Compressed" on the SERVICES Menu to load the "SASMIL SAS Military Project Template" into the \GOLD\PROJECT\ directory. After loading select "SASMIL" in the database window and highlight with the cursor. Use "Copy a Database" from the SERVICES Menu to copy this project template into a unique six-character project ID. The SASMIL template itself is not to be used for entering data. This template contains the proper format for creating the estimate, along with the WBS Titles, Project Information Records containing suggested Contractors and the beginning of an itemized Field Overhead for the prime Contractor AA. See EXHIBIT A-9-3, the Table of Contents Project "SAMPLE" for a condensed listing of the WBS. This listing should be copied and used as a guide by all persons preparing quantity take-offs and estimates. This listing shows only some of the type Assembly Titles that are in the Generic Models Database and indicates the type of detailed assemblies required in the estimate. See the Military WBS for definitions of required Assemblies or each Assembly Category. This printout, along with the Military WBS will help the Cost Engineer create the estimate in the required format.

9.18.3.1.1 Military Estimate Hierarchy. When creating a MCACES estimate it is important to recognize that the construction project consists of seven hierarchical levels, some coming from ENG Form 3086 and some from the Military WBS. They are defined as:

LEVEL 0 (Top Most Level)..PROJECT INFORMATION RECORD
LEVEL 1 .....PRIMARY/SUPPORT FACILITIES
LEVEL 2 .....INDIVIDUAL FACILITIES
LEVEL 3 .....SYSTEMS
LEVEL 4 .....SUBSYSTEMS
LEVEL 5 .....ASSEMBLY CATEGORIES
LEVEL 6 .....ASSEMBLY
LEVEL 7 .....DETAIL

9.18.3.1.2 Project Level (LEVEL 0). Indirect cost and owners cost are input at this level and distributed to the rest of the project. All cost of the Primary Facilities and Support Facilities are accumulated to obtain a total project cost. This shall include all construction contract cost as well as Government-furnished materials and items furnished through funds other than construction funds, ie. information systems.

9.17.3.1.3 Primary/Support Facilities (LEVEL 1). Divides the project into Primary Facilities, Support Facilities, Category E Equipment, and Government-Furnished Equipment

based on DD Form 1391 format for the project. Additives shall also be located at this level if required.

9.18.3.1.4 Individual Facilities (LEVEL 2). Individual Facilities under Primary Facilities will be all individual buildings identified by Category Codes in AR 415-28. Individual Facilities under the Support Facilities shall be the eight categories under Support Facilities of the DD Form 1391.

9.18.3.1.5 Systems (LEVEL 3). Under Primary Facilities the interior Military WBS System 01 through 15 and System 16 are titled at this level. If there are multiple Primary Facilities, each one shall be broken down by the 01 through 16 Systems. Under Support Facilities the Military WBS Systems 17 through 20 are broken down under the appropriate eight categories defined by DD Form 1391.

9.18.3.1.6 Subsystem (LEVEL 4). This level contains the Subsystem titles from the Military WBS for the above Systems. If there are subsystems in the project not identified by the Military WBS, they shall be identified using 90 through 99 under the appropriate System.

9.18.3.1.7 Assembly Category (LEVEL 5). This level contains the Assembly Category titles from the Military WBS for the Subsystems above. If there are Assembly Categories in the project not identified by the Military WBS, they shall be identified using 90 through 99 under the appropriate Subsystem.

9.18.3.1.8 Assemblies (LEVEL 6). Assembly Titles shall be created at this level following the definitions contained in the Military WBS. See the TRAINING ESTIMATE "CHAPEL," EXHIBIT A-9-9 for examples of required Assemblies.

9.18.3.1.9 Detail (LEVEL 7). Individual Cost Items are located at this lowest level in the estimate and reports at this level are referred to as the Detail Reports. These are the basic work tasks consisting of labor, equipment and material cost and is the same level of detail as that found in the Unit Price Book Database. Some of the basic work tasks can be modified by Modifiers from the UPB.

9.18.3.1.9.1 Modifiers are identified in the UPB Database and provide a method of adding or reducing, for optional quality or scope to the work task costs. Each modifier acts solely on the basic cost item it is assigned. Ref. R, Section 6.10, page 6-49, of the MCACES Software Manual, Volume I.

9.18.3.2 Civil and HTRW Templates.

9.18.3.2.1 For Civil and HTRW projects the "CIVTMP" Template shall be used to create the estimate format. Use "Load From Compressed" on the SERVICES Menu to load the

"CIVTMP Project Template" into the \GOLD\PROJECT\ directory. After loading select "CIVTMP" in the database window and highlight with the cursor. With the "CIVTMP" highlighted in the database window press [F2] ADD ITEM to create a project database for your project. Enter a unique six-character project ID and project title. Pressing [F10] EXIT will save this information and create the project database. Make sure this new project database is selected and shows in the database window. The "SASCIV" template itself is not to be used for entering data. This template contains the proper format for creating the estimate. The WBS Titles associated with your specific project shall be copied from the appropriate Civil Models Database.

9.18.3.2.2 For HTRW project the "SASHTW" Template shall be used to create the estimate format. Use "Load From Compressed" on the SERVICES Menu to load the "SASHTW" Project Template" into the \G530\PROJECT\ directory. After loading select "SASHTW" in the database window and highlight with the cursor. With the "SASHTW" highlighted use "Copy a Database" from the SERVICES Menu to copy this project template into a unique six-character project ID. When the coping is complete press [F8] to Select the new project database and make sure it shows in the database window. The "SASHTW" template itself is not to be used for entering data. This template contains the proper format for creating the estimate, along with the WBS Titles, Project Information Records containing suggested Contractors and the beginning of an itemized Field Overhead for the Prime Contractor AA. See the HTRW WBS for definitions of required Assembly Category and Assembly Titles.

9.18.3.3 Sample Projects. For military project examples there is a project identified as "CHAPEL," which can be loaded from the SERVICES Menu using "Load From Compressed." When Load From Compressed is complete press "Y" to select. This project demonstrates the required estimate format breakdown that the A-E shall produce in their project.

9.18.4 Supplemental Databases. This diskette contains a Generic Models Database created by Savannah District. Models Databases contain the generic type assembles. Some of these assemblies may be applicable to your project and may be pulled into your estimate. Some of these assemblies may be close to your requirements and may be copied to a new assembly ID and edited to create a new assembly to be used in your project. The Models Database ID begin with the first three characters SAS. All databases are compressed to floppy diskettes and can be loaded from within the MCACES software using "Load From Compressed" on the SERVICE Menu into the \G530\DATA\ directories.

9.18.5 Required Services. The A-E shall supply the following Cost Engineering services.

9.18.5.1 The overall project shall be analyzed by all disciplines involved in preparing the cost estimate to consider the following procedure before making the detailed quantity

take-off. This shall be done before preparing the concept estimate as it will dictate the final estimate format needed in the preparation of the quantity take-off.

9.18.5.1.1 Review the drawings and DD Form 1391 for the project to determine the number of Facilities within the Primary Facilities required in the project. Should the DD Form 1391 contain vertical buildings that can be identified by AR 415-28 Category Codes (no matter how small) in Support Facilities, the A-E shall put these buildings under Primary Facilities in his estimate. When multiple buildings are involved make each building as a separate Facility under the Primary Facilities. (Example: Tactical Equipment Shop which has POL, Storage, and Sentry Buildings). When multiple buildings are being constructed at different sites the A-E shall prepare a separate facility for each building in the Primary Facility and separate Supporting Facilities for each building site. The A-E shall prepare a proposed Bidding Schedule based on the Facility (Level 2) of the Primary Facility and the Support Facilities (Level 1) for Site Work.

9.18.5.1.2 When the number of buildings have been defined in the Primary Facility, each of the buildings shall follow the WBS of defined Systems, Subsystems, Assembly Categories, and Assemblies. The Site Work shall follow the ENG 3086 and WBS format. See EXHIBIT A-9-3 "Table of Contents" SAMPLE Project. The Detail Quantity Take-off shall follow this same format.

9.18.5.1.3 When projects are funded by more than one funding source, all work related to each funding source shall be segregated respectively. Funding sources shall be identified separately at level 1 in the MCACES estimate and shall be identified separately on the Proposed Bidding Schedule. All work associated with each funding source shall be so identified on the plans and/or specifications.

9.18.5.1.4 For Army projects, all Information Systems that are funded by OPA shall be a separate Bid Item in accordance with Draft AR 415-15 provided in other documents. These systems shall be identified as specified in paragraph 9.17.5.1.3 above. This is not required for Air Force Projects.

9.18.5.1.5 If the cost estimate is to be prepared by more than one person on more than one computer and then merged into one Prime Estimate, follow the steps in EXHIBIT A-9-14, MERGING MULTIPLE PROJECT DATABASES CHECKLIST. Failing to follow these steps may result in cost date having to be re-entered to correct the corrupted database. It is very important to understand that the Merge and Extract only work correctly when the format of the databases are exactly the same.

9.18.6 Starting the MCACES Project. All program software and databases should be installed as described above. Activate the MCACES software following instructions from the MCACES Software Manual. Before starting the project ensure that the appropriate

Project Templates and Databases are selected in the DATABASE WINDOW. Reference EXHIBIT A-9-4 "CREATE A NEW PROJECT CHECKLIST."

9.18.6.1 Military WBS Projects. For Military WBS Projects the SASMIL Template shall be selected and shown in the DATABASE WINDOW. If it is not currently selected, use [F8] SELECT and highlight with the cursor and select. The Models, Assemblies, Unit Prices, Crews, and Equipment Databases selected shall begin with "SAS" in the first three characters. The Labor Database shall be the database for the project location.

9.17.6.1.1 With the SASMIL project template selected and highlighted use "Copy a Database" from the SERVICES Menu and copy this database to a unique six-character identification code assigned by the A-E. This will duplicate the information contained in SASMIL to your new project. Select the new project using [F8] SELECT. The new Project ID shall now be in the DATABASE WINDOW.

9.18.6.1.2 With the new project highlighted press [F4] EDIT and enter the official descriptive project title. Press [F10] EXIT to save.

9.18.6.1.3 From the REPORTS Menu choose Edit Report Title Page. Enter the appropriate information as shown on the screen. Use Project Notes [F7] to describe the overall general scope of the project. See project CHAPEL for Project Notes. Press [F10] to save.

9.18.6.2 Work on Project. Highlight the new project and press [Enter] to work on the project. The first item listed is the Project Information Record. With the Project Information Record highlighted press [F4] EDIT and enter the category Code for the project from the DD Form 1391. Press [F4] to toggle out of EDIT and save the record.

9.18.6.3 Prime Contractor. Choose to work on Project Information Records by highlighting the item and pressing [Enter]. The prime Contractor record is displayed. Edit the prime Contractor by pressing [F4] EDIT. The Field OH shall be set to "C" to calculate. Home Office shall be set to P (Percent) and should be between 2 and 7 percent as described in paragraph 9.13.2 of this chapter. Profit shall be set to "C" and Bond shall be set to "C."

9.18.6.3.1 OTHER Screen - The last line on the screen (the Status Line) indicates that an Other Screen is attached to this screen by the prompt "OTHER." Choose the OTHER screen by pressing [Shift] [F7] or using the [F9] MENU ADD/EDIT. This brings forward the attached prime Contractor Window. The Profit Weighted Guideline method of determining profit shall be used for the prime Contractor and all subcontractors. Each Risk Factor field is HELP [F1] sensitive. By pressing [F1] HELP a description of the appropriate weight to apply to the project will be presented. Each Risk Factor shall be filled in based on the project cost, duration, complexity, and Contractor risks. After selecting the correct risk factors press [F7] NOTES and type in the selected factor and reason for selecting each

factor in the "Profit Weighted Guideline Note" screen. See Training Estimate, "CHAPEL," EXHIBIT A-9-9 for example.

9.18.6.3.2 The Bond Class Field shall be set to "B." This will cause the software to automatically calculate the Bond Percentage used in the estimate. (Reference Figure 7.2 and Figure 7.3 in the MCACES Software Manual, Vol. I.) Press [F10] twice to save information on the prime Contractor.

9.18.6.3.3 With the prime Contractor Record highlighted press [ENTER] to work on the Itemized Field Overhead and Subcontractors. A list screen appears showing record 0 as the Itemized Overhead followed by a long list of typical subcontractor. Choose the Contractor's Overhead by pressing [Enter] to get a list of typical itemized Field Overhead for the prime Contractor. This list is provided only as a guide. The A-E shall add/delete items, edit quantities and adjust cost to represent a detailed itemized Field Overhead for this project. Pressing [F10] upon completion will save the data. See paragraph 9.13.2 for explanation.

9.18.6.4 Subcontractors. Now highlight the subcontractors and [F4] EDIT them. The subcontractors' profit shall be calculated by the Profit Weighted Guideline for the "OTHER" window as was done for the prime Contractor. Any subcontractors not used in the estimate shall be deleted. In order for Contractors to be used in the estimate they must be assigned at the appropriate level within the Primary/Support Facilities. This will be discussed in detail later. [F10] EXIT until you are back at the Project Information Record.

9.18.6.5 Primary Facilities Title. Highlight the Primary Facility Title and [F4] EDIT. On the Primary Facility Edit Screen the quantity shall be 1 LS (Lump Sum). Usually the prime Contractor ID "AA" is enter on this screen as he is usually the prime on all Facilities under Primary Facilities. The Contractor Override Field shall be set to "NO" and the Project Category Code Q (from DD Form 1391) is typed into the Category Code Field.

9.18.6.6 Facility Titles. Highlight the Primary Facility and press [Enter] to the default FACILITY "Building One." Create the number of Primary Facilities that was determined from paragraph 9.17.5 above. To create another Facility highlight FACILITY "Building One." MARK this item by pressing [Shift] [F9] or using the [F9] FUNCTION Menu - MARK. This places a check mark to the left of the title. Exit up a level [F10] and choose COPY from the FUNCTION MENU - MARK or press [Shift] [F4]. This brings up a window allowing you to copy "AA.01. Building One" to a new location. Change the default AA.01 to AA.02 and press [Enter] to complete the copy. Now there are two identical Facilities under the Primary Facilities. Continue this process for all Primary Facilities in the project. After creating all of the Facilities, [F4] EDIT each FACILITY TITLE and type in the name of the Facility, and Gross Square Feet of the Building as the Facility Quantity and UOM. If the prime Contractor was defined on the PRIMARY FACILITIES TITLE leave the Contractor Field blank. After editing the first facility pressing [PgDn] takes you to the next facility to edit.

9.18.6.7 System Titles. With the FACILITY TITLE highlighted press [Enter] to go to Systems. The 01-15 System Titles and Selective Demolition System 16 are predefined and the titles shall not be changed. Each title shall be edited to enter the appropriate quantity as defined in the WBS. Reference the hard copy of the WBS for the correct definition of the UOM and quantity. Do not use the square feet area of the building as the quantity at the Systems Level. Use the appropriate UOM as defined in the WBS. Any SYSTEM TITLE not used in the project shall be deleted. Sometimes subcontractors can be identified at the Systems Title level as all work performed in the system is normally accomplished by one Contractor. For example System 11 - Electric Power and Lighting is normally installed by the Electrical Contractor "EL."

9.18.6.8 Subsystem Titles. With the SYSTEM TITLE highlighted press [Enter] to go to Subsystems. The Subsystem Titles are predefined and the titles shall not be changed. Each title shall be edited to enter the appropriate quantity as defined in the WBS. Reference the hard copy of the WBS for the correct definition of the UOM and quantity. When there are Subsystems in the project which are not defined in the WBS the A-E shall create them using 90 to 99 Identification code. Any SUBSYSTEM TITLE not used in the project shall be deleted. Subcontractors can be identified at the Subsystem Title level if all work performed in the subsystem is normally accomplished by one Contractor.

9.18.6.9 Assembly Category Titles. With the SUBSYSTEM TITLE highlighted press [Enter] to go to Assembly Categories. The Assembly Category Titles are predefined and the titles shall not be changed. Each title shall be edited to enter the appropriate quantity as defined in the WBS. Reference the hard copy of the WBS for the correct definition of the UOM and quantity. When there are Assembly Categories in the project which are not defined in the WBS the A-E shall create them using 90 to 99 Identification code. Any ASSEMBLY CATEGORY TITLE not used in this project shall be deleted. Sometimes subcontractors can be identified at the Assembly Category Title level as all work performed in the category is

normally accomplished by one Contractor. For example System 06 - Interior Finishes; Subsystem 01 - Wall Finishes; Assembly Category 03 - Gypsum Wallboard Finishes is normally installed by GW-Contractor and Assembly Category 04 - Tile and Terrazzo Wall Finishes is normally installed by TE-Contractor.

9.18.6.9.1 When Assemblies can be used multiple times within the project it is beneficial to the estimator to create the Assembly in the MODEL's DATABASE rather than in the project. Assemblies from the MODEL's DATABASE can be copied into the project as often as required. The A-E shall copy the SAS Generic Models Database using Copy a Database from the SERVICES Menu to the same six characters as was use to name the project. Select this new Model's Database and use it to create new assemblies. This new Models Database shall be submitted along with the project database with each submittal. Make a list (hand written or typed) of the Assembly ID and description of the newly created Assemblies and submit with the Final Estimate Submittal. See EXHIBIT A-9-1.

9.18.6.10 Assembly Titles. The project template contains no Assembly Titles. The A-E shall create the Assembly Titles based on the requirements of the project. Reference the sample project "CHAPEL" for examples of the required Assembly breakdown to be provided. The WBS provides a description of detailed items found in the assemblies. Also ref. EXHIBIT A-9-3 "Table of Contents" Sample Project.

9.18.6.10.1 CREATE an ASSEMBLY TITLE. Highlight the appropriate ASSEMBLY CATEGORY and from the FUNCTION MENU "ADD/EDIT" choose "Add Subtitle" or press [Shift] [F3]. This will put you in the Add Subtitle Mode where you must enter a two-character Assembly ID. This ID will normally be 01-99 but alpha characters may be used if required. You are now ready to look for an existing assembly or create a new assembly.

9.18.6.10.2 LOOKUP an ASSEMBLY. Press [F6] LOOKUP and choose "Models" to look into the Models Database for available Assemblies that may exist. See paragraph 9.17.4. If an appropriate Assembly is located in the Models Database it can be copied into the project by highlighting the Assembly Title and pressing [F6] LOOKUP. You will be prompted to "Confirm LookUp" and by pressing [Enter] will accept what was looked up. You will then be prompted to "OMIT detail (Y/N)? N." with NO being the default. Press [Enter] to receive detail. With LookUp completed you will have the Assembly Title and Detail Items making up the assembly in your project. Press [F10] to exit Add and press [Enter] to select the Assembly and view the Detail List screen. If the detail items have the letter "P" to the Left of the Quantity in the Quantity field, the detail items have been linked to the "Parent Quantity," the Assembly Title in this case. You will not be able to edit the quantity in Detail List if the item is linked. You have to edit the Assembly Title and enter the correct assembly quantity which will then adjust the detail quantities.

NOTE: Some of the Assemblies are not linked and the assembly quantity will not adjust the detail. This is the case when there is not a direct correlation between assembly

quantity and detail quantity. In the "SAS Generic Models Database" provided with the software the Assembly Titles have been marked to identify whether the assembly is partially linked versus totally linked. See "READ ME FIRST" notes in the SAS Generic Models Database and examine the assembly titles under Support Facilities; Water, Sewer and Gas (_B.02.19.01.02) as an example. The # symbol at the end of an Assembly Description indicates that there are Detail Cost Items contained in the assembly that are not linked to the Assembly Quantity. The user will have to edit the detail item and enter the appropriate quantity in addition to entering the Assembly Quantity. If the Assembly Title Description does not contain a # symbol, the detail items are linked to the Assembly Quantity and the user must enter the appropriate Assembly Quantity. The Detail Item's quantity will automatically be adjusted. When this is the case there will not be a "P" in the detail quantity field and the detail quantity can not be edited.

9.18.6.10.3 CREATING an ASSEMBLY. If there is not an assembly already created that reflects the assembly needed for the project, then the A-E shall create the assembly from detail items in the Unit Price Database. Locate the correct ASSEMBLY CATEGORY TITLE and Add Subtitle [Shift] [F3]. This puts you in the Assembly Add Screen where you enter the Assembly ID, Title, Quantity an Assembly Unit of Measure. Reference WBS for UOM's. Press [F10] to save. Choose to work on the newly created Assembly Title by pressing [Shift] [F5] ADD DETAIL. Reference paragraph 6.2, page 6-9 of the MCACES Software Manual. On the Cost Item Entry Screen the first two fields of the "Project Sequence/Database" ID requires no entry. Position the curser to the third field and press [F6] LOOKUP and choose to look up into Unit Price [Shift] [F6]. The software will place you at the top of the Unit Price Database. Detail items can be marked by pressing [Shift] [F9] MARK or by pressing [TAB] to move to the Quantity Field. Entering a quantity other than zero will also mark the item. Entering a zero will un-mark the item. After selecting or marking the detail items needed in the assembly press [F6] and then confirm lookup. This will return all detail items marked to your project. Press [F10] to exit Add Detail and save the items. Now check that all detail quantities are correct for your project by editing each item or, if appropriate, you can link the detail items to the Assembly quantity. Paragraphs 9.17.6.1.9 through 9.17.6.1.11 shall be repeated for all Facilities under Primary Facilities.

NOTE: One must be located at DETAIL in the UPB when copying multiple detail items into the project, i.e. pressing [F6] to complete lookup. If [F6] is pressed while located at a title level, only the last marked item will be copied into the project. "EDIT ITEM" only allows one to replace a detail item with another item from the UPB.

9.18.6.11 Support Facilities Title. In most projects there is only one set of Support Facilities (all Primary Facilities are constructed on the same site). When there is only one set of Support Facilities this title record needs only to be edited to identify the prime Contractor.

9.18.6.12 Adding Additional Support Facilities. Occasionally there are projects that contain multiple Primary Facilities on more than one site. When this happens the Support Facilities Titles and WBS structure shall be duplicated in a Second Support Facilities Title. Highlight the Support Facility and "MARK" the title by pressing [Shift] [F9] or selecting "MARK" from the pull down MARK MENU. After marking the Support facility, arrow up to the "Project Information Record" and press [Shift] [F4] or "COPY" from the MARK MENU to copy to a new location. The screen will prompt to Copy From "BA" to "BA". Change the copy to ID from "BA" to an unused ID i.e. "FA", etc. Edit both Support Facilities and change the Description to reflect the respective sites and identify the Prime Contractor. This shall be repeated for each separate site location.

9.18.7 Print Selected Reports. The following procedures shall be required by the A-E when creating the required printed reports for all submittals. Ref. EXHIBIT A-9-11 "PRINT SUBMITTAL REPORTS CHECKLIST." The Unit Price Database can also be printed for those who may want a hard copy. Reference EXHIBIT A-9-15 "PRINTING THE UNIT PRICE DATABASE AND OTHER DATABASES", for printing instructions.

9.18.7.1 PACK A DATABASE. When making an estimate submittal to Savannah District the project database shall be packed to permanently erase deleted records from the project. From the SERVICES Menu choose Pack a Database while the project is highlighted in the Database Window.

9.18.7.2 SELECT REQUIRED REPORTS. See EXHIBIT A-9-11 for MCACES Detail Report Format and Report Selections for all Submittals to Savannah District.

9.18.7.3 Printer Setup. The printer shall be set up to print in Landscape mode with 172 characters per line and 66 lines per page.

9.18.7.4 Activate Reports Generator. From the REPORTS Menu choose Print Selected Reports. Type in the estimate design status (Concept, Final, etc.) in the Report Title Field, see CHAPEL Estimate for example title.

9.18.7.4.1 Send Reports to Printer. When sending the Reports directly to the printer as they are created enter PRN in the Printer Device Field and press [PgDn] to activate writing the reports.

9.18.7.4.2 Send Reports to File. If you want to send the Reports to a file and print at a later time or view the reports before printing, type in a filename.txt in the Printer Device Field and press [PgDn]. This writes the reports to the file and the file can be printed later using the DOS Print command.

9.18.7.3.3 Viewing a Reports File. If the reports were written to a file, the file may be viewed using View Reports with Viewer from the REPORTS Menu.

9.18.8 Save to Compressed. After generating and printing the required submittal reports the databases shall be Saved to Compressed to floppy diskettes, placed in an envelope, stapled to the printed estimate and submitted along with the printed estimate.

9.18.8.1 Compress Project Database. The project database shall always be Saved to Compressed. A formatted floppy diskette is required to complete this process. Highlight the Project in the Database Window. From the SERVICES Menu choose Save to Compressed and enter the Project ID. When prompted to "Save Related Databases along with Project?" respond "N" for No. When the
compression process is complete save to the floppy.

9.18.8.2 Compress Assembly and/or Models Databases. If new items were created in the Models or Assembly Databases (reference paragraph 9.17.6.9), those databases shall be Saved to Compressed along with the project for the Final Submittal only. To Save to Compressed the Models Database highlight and use Save to Compressed. When prompted with the path of the databases press [Enter] and a list of available databases will be presented. Use the up/down arrow to locate the database/s you want to compress and press the [Space Bar] to put a "Check Mark" by that database. When all databases have been marked press [Enter] to start the compression process. With the compression process complete save to floppy. The compressed Project is displayed with a check mark to the left of the ID in the "Keep Database Window." Press [Enter] to keep the project and also save the compressed Assembly or Models to the same floppy diskette. The next prompt will be "Diskette is NOT BLANK, Delete All Non-Database Files?" Respond "Y" for yes. This will save both the project and other databases to compressed floppy diskette.

9.18.8.3 Compress Labor Database. If new rates are created in the Labor Database (Reference paragraph 9.12.2), the database shall be saved to compressed along with the project. Follow the same procedure as in paragraph 9.17.8.2.

9.18.8.4 Floppy Diskette Labels. The following information shall be recorded on all floppy diskettes submitted to Savannah District.

Project Identification Code (6 character code, para. 9.17.1.1) and the design status, ie. "CHAPEL 60 Percent Estimate".

Project Title

FY-XX LI-XXXXXXX

Location

LOAD from Compressed 1 of ?

9.19 **REPORT OF COST AND BUILDING/STRUCTURE ANALYSIS**.

9.19.1 General. The "Report of Cost and Building/Structure" are used by CESAS-EN-C to prepare cost guidelines for future projects. These reports are to be furnished as a part of the Final A-E Cost Submittal. A revised report shall be submitted with the Corrected Final Submittal if any scope changes are made after the Final Submittal. Reference EXHIBIT A-9-12 for Forms.

9.19.2 Requirements. The following instructions identify the items of work that require cost reports:

9.19.2.1 Buildings. (All applicable construction Category Codes) Reports shall be submitted for all new buildings funded by appropriated or nonappropriated funds. Reports shall be furnished for additions to existing buildings, but only when the estimated contract cost of the addition exceeds $50,000.00. To the degree practical, reports for additions shall exclude the estimated cost of repairs and alterations in the existing building.

9.19.2.2 Liquid-Fuel Dispensing and/or Storage Facilities. (Construction Category Codes 120 and 410). Reports shall be submitted for all liquid-fuel dispensing and/or storage projects where the estimated contract cost exceeds $50,000.00.

9.19.2.3 Paving. (Construction Category Codes 110 and 850) Reports shall be submitted for all paving projects where the quantity of paving of any one type specified exceeds 5,000 square yards. Separate reports are required for flexible pavement or rigid pavement where the quantity of either exceeds 5,000 square yards.

9.20 **CONTRACT-MODIFICATION ESTIMATES**.

9.20.1 General. In certain cases the A-E will be required to prepare estimates for construction contract modifications. These estimates are used as a basis of negotiations with Contractors for additions to or deletions from a project, or both, and shall be prepared in accordance with instructions of this chapter for Government Estimates.

9.20.2 Requirements. Modification estimates shall be prepared in accordance with the following instructions.

9.20.2.1 The modification estimate shall be generated by MCACES.

9.20.2.2 A complete and detailed quantity take-off and accompanying cost estimate shall be submitted with the modification package. The quantity take-off and cost estimate shall be an accurate representation of the proposed modification as submitted.

9.20.2.3 EXHIBIT A-9-13 shows an example of a typed modification summary format. This summary estimate shall be prepared for all modification packages. The typed summary format shall show estimated contract cost of all work deleted from the construction contract by this modification as well as all work being added by this modification.

9.20.2.4 The estimated additional construction time, in calendar days, required as a result of this modification shall be shown on the typed summary sheet.

9.20.2.5 The quantity take-off shall contain backup or supporting sheets showing breakdowns for all quantities of all materials being deleted from and/or added to the construction contract drawings and/or specifications. The quantity take-off shall be prepared in the same detail as required for the final cost estimate, including cross sections for earthwork quantities, equipment and material quotes, etc.

9.20.2.6 In addition to the quantity takeoff the A-E shall submit a list of the principal items of equipment as described in paragraph 9.7.2.3 of this chapter.

9.20.2.7 The A-E shall prepare a detailed overhead and profit sheet as described in paragraphs 9.12 and 9.13 of this chapter. The A-E shall prepare these sheets, to the degree practicable, to match the conditions of the Contractor constructing the project.

9.20.2.8 The following additional Government-furnished items will be supplied to the A-E whenever he is instructed to prepare a modification package.

9.20.2.8.1 EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule-Region III, current issue.

9.20.2.8.2 The A-E shall receive the actual labor rates being used by the Contractor as well as all of the Contractor's equipment on the project site and their applicable rental and/or ownership rates from CESAS-EN-EM (Savannah District Engineering Management and Support Section). This information shall be used by the A-E in preparation of the modification estimate. If the actual labor rates are not readily available, the A-E shall be furnished the latest Davis-Bacon wage rates for the project location. If equipment rental/ownership information is not available, the A-E shall use the equipment rates contained in EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule-Region III, current date. The labor and equipment rates used by the A-E in preparation of the modification estimate will be submitted as part of the estimate backup data.

9.20.2.9 Audit reports and results from previous modifications on this specific project to be used in adjusting labor productivity and material pricing will be furnished by the project manager.

9.20.2.10 The A-E shall submit a checklist, see EXHIBIT A-9-1, to be used as a coversheet with each modification estimate submittal.

9.20.2.11 The official Government Estimate will be prepared by CESAS-EN-C.

CHAPTER A-9

COST ESTIMATES

EXHIBITS

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A-9-4 CREATE A NEW PROJECT CHECKLIST

A-9-5 TYPED SUMMARY ESTIMATE EXAMPLE

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A-9-7 QUANTITY TAKE-OFF EXAMPLES

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A-9-9 TRAINING ESTIMATE, "CHAPEL"

A-9-10 PROPOSED BIDDING SCHEDULE

A-9-11 PRINT SUBMITTAL REPORTS CHECKLIST

A-9-12 REPORT OF COST AND BUILDING/STRUCTURAL ANALYSIS

A-9-13 MODIFICATION ESTIMATE SUMMARY SHEET

A-9-14 MERGING MULTIPLE PROJECT DATABASES CHECKLIST

A-9-15 PRINTING THE UNIT PRICE DATABASE AND OTHER DATABASES

A-9-16 SAMPLE CONCEPT/DESIGN BUILD ESTIMATE

A-9-17 A-E CONTRACT SUBMITTAL REGISTRY

COST ESTIMATE SUBMITTAL CHECKLIST

PROJECT:
LINE ITEM: FISCAL YEAR:
BASE: LOCATION:

*	[ ]	Current Working Estimate Signature Sheet
*	[ ]	Typed Summary Format
*	[ ]	Complied with "Create A New Project Checklist" EXHIBIT A-9-4
*	[ ]	Construction Cost Estimate Generated on "MCACES" following WBS format
*	[ ]	FLOPPY DISKETTES containing the project database and saved to compressed, placed in envelope and stapled to the estimate
	[ ]	FLOPPY DISKETTE containing the NEW databases (Models, Assemblies, Labor) if A-E added new data. Use save to compressed ref. paragraphs 9.17.8.2 and 3 (Final Estimate Only)
	[ ]	Assembly Listing of newly created assemblies, see Para 9.17.6.9.1 (Final Estimate Only)
*	[ ]	Quantity Take-off Sheets
	[ ]	Plan of Construction (Final Estimate Only)
	[ ]	List of principal items of equipment and price quotations (Final Estimate Only)
*	[ ]	Prime Field Overhead Itemized in the MCACES Project Estimate. Prime and subcontractors profit calculated by the weighted guidelines method in MCACES and notes added to each explaining factors used.
*	[ ]	Proposed Bidding Schedule
*	[ ]	Written Narrative When CWE exceeds Programmed Amount or Present Estimate is Greater than 5% of Previous Estimate
	[ ]	Report of Cost and Building/Structural Analysis (Final Estimate Only) Exhibit A-9-12
*	[ ]	Annotated Review Comments
	[ ]	Modification Typed Summary Format Modification Only)
	[ ]	Equipment Rates (Modifications Only)

TYPE OF ESTIMATE:
[ ] Concept [ ] Preliminary [ ] Final [ ] Corrected Final [ ] Other:

* INDICATES ITEM IS REQUIRED ON ALL SUBMITTALS.

CURRENT WORKING ESTIMATE SIGNATURE SHEET

DATE _____

THIS SHEET SHALL BE PLACED DIRECTLY following the FOUO Cover Sheet on all A-E Submittal estimates and each person required to view the estimate shall sign below:

CWE Estimate for:

_____

_____

SIGNATURES:

1. _____ 11. _____

2. _____ 12. _____

3. _____ 13. _____

4. _____ 14. _____

5. _____ 15. _____

6. _____ 16. _____

7. _____ 17. _____

8. _____ 18. _____

9. _____ 19. _____

10. _____ 20. _____

No Summary Reports...

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* * * END TABLE OF CONTENTS * * *

CREATE A NEW PROJECT CHECKLIST

[] The correct databases (Models, Unit Prices, Crews, Labor Rates, and Equipment Rates) are present in the Database Window. See paragraph 9.17.6.

[] The correct WBS Project Template has been selected according to paragraph 9.17.6.

[] The Project Template has been copied to new six character ID for this project according to paragraph 9.17.6.1.1.

[] The New Project has now been selected, and name of project edited according to paragraph 9.17.6.1.2.

[] The Report Title Page has been edited for this project according to paragraph 9.17.6.1.3.

[] The Project Information Record has been edited according to paragraph 9.17.6.2.

[] Prime and subcontractors have been edited according to paragraph 9.17.6.3 and 9.17.6.4.

[] The correct number of Facilities have been created according to paragraph 9.17.6.6.

[] The required Assembly Titles for all Primary and Support Facilities have been created and detailed items entered into the Assemblies according to paragraph 9.17.6.10.

[] All System, Subsystem, and Assembly Category Titles not required in this project have been deleted and the Project has been Packed. See paragraphs 9.17.6.7, 8, and 9.

[] All System, Subsystem, and Assembly Category Titles required in this project have been edited with the correct quantity and UOM. See paragraphs 9.17.6.7, 8, and 9.

[] All subcontractors not required in this project have been deleted and the Project has been Packed. See paragraph 9.17.6.4.

Concept, Preliminary or Final Estimate - Project Title, L.I. , FY - ,
Project Location 1 Aug 88

SUMMARY
(SUMMARY FOR FY-88 AND BEYOND PROJECTS)

		BASE BID	ADDITIVE	TOTAL
PROGRAMMED AMOUNT ----------		$5,000,000		$5,000,000
CONSTRUCTION COST LIMIT (CCL) -----	89.50%	4,475,000		4,475,000
BASE BID	=====	==========	==========	==========
CONTRACT COST - PRIMARY FAC/BLDG -------		3,200,000		3,200,000
CONTRACT COST - SUPPORT FACILITIES -----		434,962		434,962
				0
ADDITIVES (List Below or Separately)---		0	432,916	432,916
TOTAL CURRENT CONTRACT COST (CCC) ------		3,634,962	432,916	4,067,878
ESCALATION				
MIDPOINT MONTH ( ) YEAR ( )				
COST GROWTH FACTOR MIDPOINT INDEX ----	1580			
CURRENT INDEX -----	1520			
COST GROWTH FACTOR -	103.95%			
ESCALATED CONTRACT COST (ECC) ----------		3,778,543	450,005	4,297,993
CONTINGENCIES ----------	2.00%	75,571	9,000	85,960
SUBTOTAL----------		3,854,114	459,005	4,313,119
SIOH ----------	6.00%	231,247	27,540	258,787
SUBTOTAL ----------		4,085,361	486,545	4,571,906
* VALUE ENGINEERING ----------		20,000	0	20,000
* COMMUNICATIONS----------		127,000	0	127,000
* AS BUILTS DWG (A-E) (0.2% of CCC) ----		7,270	0	7,270
* EMCS CONNECTION ----------		75,000	0	75,000
* ETC.				
E&D (0.5% of ECC) ----------	0.005	18,893	2,250	21,143
CURRENT WORKING ESTIMATE (CWE) ESCALATED		4,333,524	488,795	4,822,319
OCE CONTINGENCIES ----------	3.00%	130,006	14,664	144,670
OCE CWE ----------		$4,463,530	$503,459	$4,966,989
** CWE/PA ----------		89.27%	10.00%	99.34%

ESTIMATED CONSTRUCTION TIME 485 DAYS

* OBTAIN FROM PROJECT MANAGER AS APPLICABLE
** ADDITIVES REQUIRED WHEN CWE/PA EXCEEDS 90%

ADDITIVES

PREPARED BY:

I.M. WRIGHT, P.E.
Cost Engineer

SUBMITTED BY:

U. BETTER BEE, P.E.
President, Best Guess, Inc.

WEIGHTED GUIDE LINE
PROFIT DETERMINATION

SIZE OF JOB		FACTOR	SIZE OF JOB		FACTOR
0	100,000	0.120	3,300,000	3,400,000	0.073
100,000	200,000	0.119	400,000	500,000	0.071
200,000	300,000	0.117	500,000	600,000	0.070
300,000	400,000	0.116	600,000	700,000	0.069
400,000	500,000	0.114	700,000	800,000	0.067
500,000	600,000	0.113	800,000	900,000	0.066
600,000	700,000	0.111	900,000	4,000,000	0.064
700,000	800,000	0.110	4,000,000	100,000	0.063
800,000	900,000	0.109	100,000	200,000	0.061
900,000	1,000,000	0.107	200,000	300,000	0.060
1,000,000	100,000	0.106	300,000	400,000	0.059
100,000	200,000	0.104	400,000	500,000	0.057
200,000	300,000	0.103	500,000	600,000	0.056
300,000	400,000	0.101	600,000	700,000	0.054
400,000	500,000	0.100	700,000	800,000	0.053
500,000	600,000	0.099	800,000	900,000	0.051
600,000	700,000	0.097	900,000	5,000,000	0.050
700,000	800,000	0.096	5,000,000	10,000,000	0.040
800,000	900,000	0.094	OVER	10,000,000	0.030
900,000	2,000,000	0.093			
2,000,000	100,000	0.091			
100,000	200,000	0.090			
200,000	300,000	0.089			
300,000	400,000	0.087			
400,000	500,000	0.086			
500,000	600,000	0.084			
600,000	700,000	0.083			
700,000	800,000	0.081			
800,000	900,000	0.080			
900,000	3,000,000	0.079			
3,000,000	100,000	0.077			
100,000	200,000	0.076			
200,000	300,000	0.074			

WEIGHTED GUIDE LINE
PROFIT DETERMINATION

PERIOD OF PERFORMANCE				FACTOR
OVER	24	MONTHS		0.120
23 TO	24	MONTHS		0.116
22 TO	23	MONTHS		0.112
21 TO	22	MONTHS		0.109
20 TO	21	MONTHS		0.105
19 TO	20	MONTHS		0.101
18 TO	19	MONTHS		0.098
17 TO	18	MONTHS		0.094
16 TO	17	MONTHS		0.090
15 TO	16	MONTHS		0.086
14 TO	15	MONTHS		0.082
13 TO	14	MONTHS		0.079
12 TO	13	MONTHS		0.075
11 TO	12	MONTHS		0.071
10 TO	11	MONTHS		0.068
9 TO	10	MONTHS		0.064
8 TO	9	MONTHS		0.060
7 TO	8	MONTHS		0.056
6 TO	7	MONTHS		0.052
5 TO	6	MONTHS		0.049
4 TO	5	MONTHS		0.045
3 TO	4	MONTHS		0.041
2 TO	3	MONTHS		0.038
1 TO	2	MONTHS		0.034
UNDER	30	DAYS		0.032
	0	DAYS		0.000

WEIGHTED GUIDE LINES
PROFIT DETERMINATION

SUBCONTRACTING				FACTOR
SUB	80%	OR	MORE	0.030
	70%	TO	80%	0.042
	60%	TO	70%	0.055
	50%	TO	60%	0.068
	40%	TO	50%	0.080
	30%	TO	40%	0.092
	20%	TO	30%	0.105
	10%	TO	20%	0.118
	0%	--	--	0.120

Project: Seaman's Chapel Location: Kings Bay FY: 93 LI 0101011 Date: 2 Mar 93 Page: ____

Facility: Chapel Facility Area: 17,175 UOM: SF Estimator: Usher Checked By: RGM

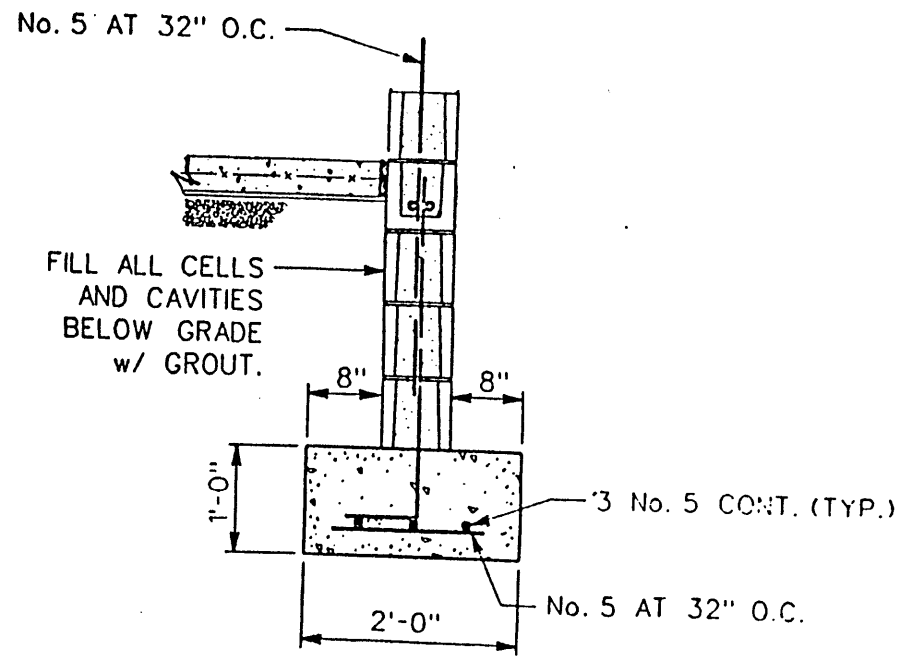
Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

Plate No. S-2/S-4 Specification No. ____

01 System: SUBSTRUCTURE

Sub-System	Assembly Cat	Assembly	WBS UoM	WBS Quantity	Description	Quantity per Unit	Unit of Msur
01					STANDARD FOUNDATIONS		
	01				WALL FOUNDATIONS		
		01	LF	491	2'-0" WIDE CONTINUOUS FTG.	1	LF
					EXCAVATION	0.59	CY
					TRIM EXC. SIDE & BOTTOM	2.0	SF
					FOOTING FORMS	2.0	SF
					REBAR	5.35	LB
					CONCRETE	0.074	CY
					SCREED CONCRETE	2.0	SF
					CURE CONCRETE	2.0	SF
					BACKFILL	0.44	CY
					COMPACTION	0.44	CY

Quantity Take-Off
Assumptions and Calculations
Use Additional Sheets as Required



SECTION 2 S-2 S-4

25' + 47' + 53' + 12' + 9.5' + 6.33'
+ 36.33' + 48.67' + 13.67' + 42.0'
+ 16.75' + 120.25' + 13.5' + 16.33'
+ 12.75' + 7.33' + 10.6 = 491 LF

U.S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

Page ____

Subject: Seaman's Chapel ~ Kings Bay Naval Facility

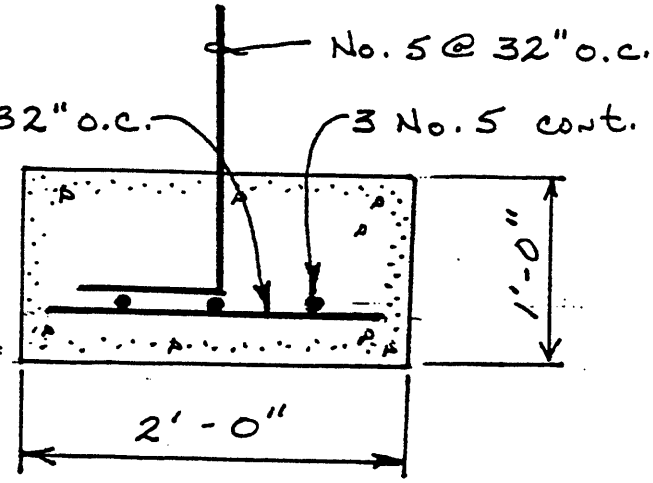
Computation 01/SUBSTRUCTURE No. 1

Computed by CHH Checked by RGM Date 2 MAR 93

01 STANDARD FOUNDATIONS
01 WALL FOUNDATIONS
01 2'-0" WIDE CONTINUOUS FOOTING

This assembly is made up of foundation excavation, trimming of bottom and sides of excavation, footing forms, No. 5 rebar @ 32" o.c., 3 #5 rebar continuous, concrete, screeding and curing concrete and backfilling of excavation material.

NOTE:
Quantities based on 100LF of footing to obtain an average per linear foot.



EXCAVATION:
4.0'w x 4.0'd x 100LF/27 = 59.26 cy/100LF = 0.59 cy/

TRIM EXCAVATION SIDES AND BOTTOM: (Bottom Only)
2.0 w. x 100LF = 200LF/100LF = 2.0LF/

FOOTING FORMS:
1.0'h x 2 sides x 100 LF = 200 SF/100 LF = 2.0 SF/LF

REBAR:
#5 @ 32" o.c.
(VERT.) 4.0 LF/ea x (100LF / 2.67 o.c.) x 1.043 lb/LF = 154.4 lb
(horiz) 1.75 LF/ea x (100 LF / 2.67 o.c.) x 1.043 lb/LF = 67.5 lb
#5 cont. (3ea) 100 LF/ea x 3 ea x 1.043 lb/LF = 312.9 lb

534.8 lb / 100 LF = 5.35 lb/

SAS Form 267
1 Jan 81 Supersedes SAS Form 267E which will be used.

U.S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

Page ___

EXHIBIT A-9-7

Subject: Seaman's Chapel ~ Kings Bay Naval Facility

Computation 01 / Substructure No. 2 of 2

Computed by [illegible] Checked by RGM Date 2 MAR 93

01 STANDARD FOUNDATIONS
01 WALL FOUNDATIONS
01 2'-0" WIDE CONTINUOUS FOOTING

CONCRETE:
2.0'w x 1.0'h x 100 LF/27 = 7.41 cy /100 LF = 0.074 cy/L

SCREED CONCRETE:
2.0'w x 100 LF = 200 SF/100 LF = 2.0 SF/L

CURE CONCRETE:
2.0'w x 100 LF = 200 SF/100 LF = 2.0 SF/LF

Backfill Excavation Material:
(Includes allowance for 8" CMU)

Concrete Volume: 0.074 cy/LF
Block Volume:
.67'w x 3.0'h x 100 LF/27 = 7.4 cy/100 LF = 0.074 cy/LF

Excavation
0.59 cy/LF − (Conc. Vol. 0.074 cy/LF + Block Vol. 0.074 cy/LF) = 0.44 cy/LF

COMPACTION - SAME AS BACKFILL 0.44 cy/LF

SAS Form 267
1 Jan 81 Supersedes SAS Form 267E which will be used.

Project: SEAMAN'S CHAPEL Location: KINGS BAY NAV FAC FY: 93 LI 0101011 Date: 2 MAR 93 Page:

Facility: CHAPEL Facility Area: 17,175 UOM: SF Estimator: RGM Checked By: CHU

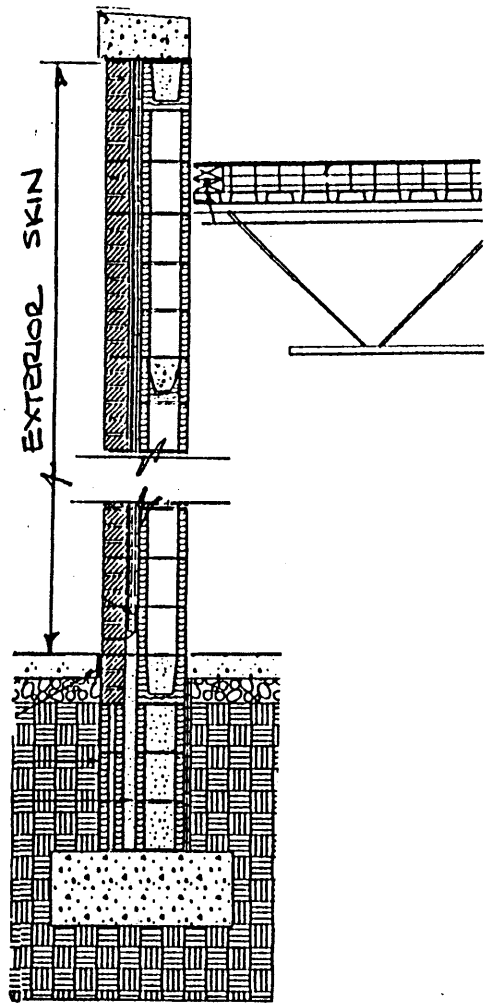
Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

Plate No. A-12 Specification No. ____

03 System: EXTERIOR CLOSURE

Quantity Take-Off
Assumptions and Calculations
Use Additional Sheets as Required

Sub-System	Assembly Cat	Assembly	WBS UoM	WBS Quantity	Description	Quantity per Unit	Unit of Msur
01					EXTERIOR WALLS		
	01				EXTERIOR SKIN		
		01	SF	10293	8" CMU WALL W/BRICK VENEER	1	SF
					SCAFFOLDING	1	SF
					BOND BEAM	.3	LF
					BOND BEAM REBAR	.63	lb
					GROUT BOND BEAM	.3	LF
					HORIZ. JT. REINF.	.8	LF
					8" CMU BLOCK	.8	SF
					VERT. REBAR	.42	lb
					GROUT CELLS	.22	SF
					Z-TYPE WALL TIE	.25	SF
					FACE BRICK	1	SF



U.S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EXHIBIT A-9-7

Page ____

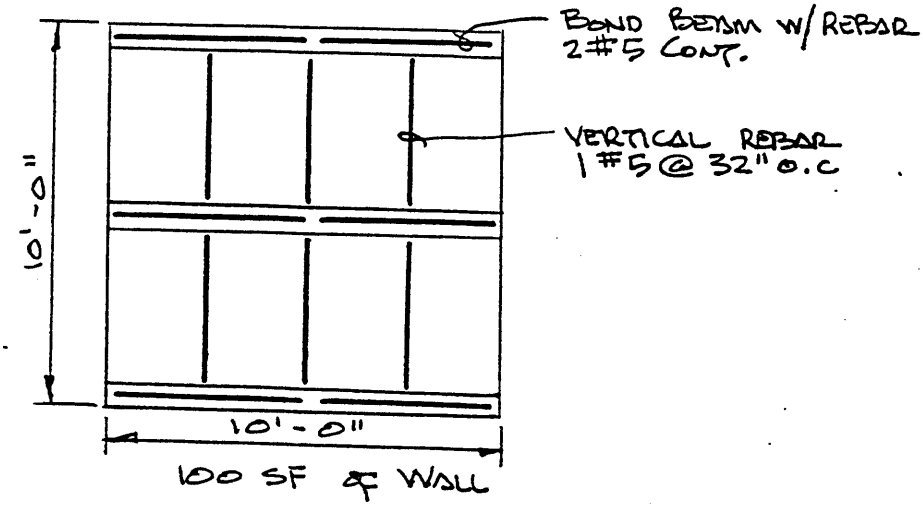
Subject: SEAMAN'S CHAPEL - KINGS BAY NAV FAC - L.I. 0101011

Computation 03/ EXTERIOR CLOSURE No. ____

Computed by RGM Checked by GW Date 2 MAR 93

01 EXTERIOR WALLS
01 EXTERIOR SKIN
01 8" CMU WALL W/BRICK VENEER

THIS ASSEMBLY IS MADE UP OF 8" CMU BLOCK WITH 8" BOND BEAM @ 4'-0" O.C. W/ 2 #5 REBAR GROUTED, VERTICAL REBAR (1#5 @ 32" O.C.) WITH GROUTED CELLS AND JOINT REINFORCEMENT EVERY OTHER COURSE. Z-TYPE WALL TIES ATTACH ANCHOR BRICK VENEER TO BLOCK WALL.



SCAFFOLDING = 10' x 10' = 100SF ÷ 100SF = 1 SF/SF

BOND BEAM = 3 COURSES x 10' Lg = 30LF ÷ 100SF = .3LF/SF

BOND BEAM REBAR = 2#5 CONT = 2EA x 1.043#/LF x 30LF = 63# ÷ 100SF = .63#/SF

GROUT BOND BEAM = 3 COURSES x 10' Lg = 30LF ÷ 100 SF = .3LF/SF

JOINT REINF. = 10' HT ÷ .67 = 15 COURSES ÷ 2 = 7.5 x 10' Lg = 75LF ÷ 100SF = .8LF/SF

8" CMU BLOCK = 12 COURSES x .67 = 8' HT x 10' Lg = 80SF ÷ 100SF = .8 SF/SF

VERTICLE REBAR = 4 EA x 10' Lg x 1.043#/LF = 42# ÷ 100SF = .42#/SF

GROUT CELLS = 4 ROWS x 8' HT (MINUS BOND BEAM) x .67' W = 22 SF ÷ 100SF = .22SF/S

WALL TIES = 1 EA @ 4'-0" O.C. E.W. = .25 EA/SF

FACE BRICK = 10' x 10' = 100 SF ÷ 100SF = 1SF/SF

SAS Form 267 Supersedes SAS Form 267E which will be used

U.S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EXHIBIT A-9-7

Subject: SEAMAN'S CHAPEL - KINGS BAY NAV FAC - L.I. 0101011 Page ___

Computation EXTERIOR CLOSURE No. ___

Computed by R. MOODY Checked by CHN Date 2 MAR 93

03/01/01/01

8" CMU WALL W/ BRICK VENEER

NORTHEAST ELEVATION

16' HT X 117 LG	=	1872 SF	TOTAL
12' LG X 8' HT ~~EA~~	=	~~48~~ 96	
8' X 17' X 2 EA	=	272	
1' X 31' X 2 EA	=	62	
3' X 59'	=	177	
16' X 24 ~~EA~~	=	192	
		2,671 SF	

DEDUCT WINDOWS/ DOORS & CANOPY

3' X 5' X 8 EA	=	-120	
8' X 12'	=	- 96	
3' X 16'	=	- 48	
8' X 5' ~~EA~~	=	- 40	
		2,367 SF	2,36

SOUTHEAST ELEVATION

16' HT. X 152' L	=	2,432
3' HT X 36' L	=	108
12' HT X 18 L ~~EA~~	=	~~108~~ 216
6' X 4' X ~~EA~~	=	24
3.5' X 50' LG	=	175
4' X 19'	=	76
16' X 3.5'	=	56
1.5 X 21	=	32
		3,119 SF

DEDUCT WINDOWS

20 EA X 3' X 5'	=	- 300
2 EA X 1' X 12'	=	- 24
		2,795 SF

2795 S

SUB TOTAL 5,162 S

(CONT.)

SAS Form 267

U.S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
SAVANNAH, GEORGIA

EXHIBIT A-9-7 Page 7 of 18

Page ___

Subject: SEAMAN'S CHAPEL - KINGS BAY NAV FAC - L.1.0101011

Computation EXTERIOR CLOSURE

No. ___

Computed by R. MOODY Checked by CHU Date 2 MAR 93

03/01/01/01

8" CMU WALL W/ BRICK VENEER (CONT.) 5162 SF

SOUTHWEST ELEVATION

8' X 17' X 2 EA =	272
1' X 16' X 2 EA =	32
16' X 16' X 2 EA =	512
76' X 18' =	1368
17' X 23' ~~÷2~~ =	391
	2,575 SF

DEDUCT DOORS & WINDOWS

3 EA X 3' X 5' =	- 45
3 EA X 6' X 8' =	- 144
7' X 5' =	- 35
	2,396

2,396 S

NORTHWEST ELEVATION

16' X 152' =	2,432
4' X 25' =	100
21' X 1' =	21
3.5' X 18' =	63
12' X 17' =	204
3.5' X 50' =	175
	2,995 SF

DEDUCT WINDOWS

15 EA X 3 X 5' =	- 225
2 EA X 12' X 7' =	- 168
9' X 6' X 1 EA =	- 54
	2,548 SF

2548 SF

10,106 S

ADD FOR ENTRANCE WALL
8' HT X 24' LG = 192

✓ 10,298 S

RIGID BOARD INSULATION

10,298 SF

SAS Form 267

Project: SEAMAN'S CHAPEL Location: KINGS BAY NAV FAC FY: 93 LI 0101011 Date: 2 MAR 93 Page:

Facility: CHAPEL Facility Area: 17,175 UOM: SF Estimator: RGM Checked By: CHU

Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

Plate No. A-7 Specification No. ____

03 System: EXTERIOR CLOSURE

Quantity Take-Off
Assumptions and Calculations
Use Additional Sheets as Required

Sub-System	Assembly Cat	Assembly	WBS UoM	WBS Quantity	Description	Quantity per Unit	Unit of Msur
03					EXTERIOR PERSONNEL DOORS		
	02				SOLID DOORS		
		01	EA	2	PR. 3°x7° H.M. DOOR IN MASONRY	1	EA
					6°x7° STEEL FRAME	1	EA
					DOVETAIL ANCHOR	6	EA
					GROUT DOOR FRAME	1	EA
					PR 3°x7° H.M. DOORS	1	EA
					PAINT DOOR & FRAME	1	EA
					CAULKING	.2	CLF
03							
	02						
		03	EA	2	HARDWARE SET NO. 2	1	EA
					BUTTS	3	PR
					LOCKSET	1	EA
					FLUSH BOLT	2	EA
					O.H. HOLDER	2	EA
					DUSTPROOF STRIKE	1	EA
					THRESHOLD	6	LF

NOTE:
THESE SAMPLE ASSEMBLIES WOULD ALSO BE APPLICABLE TO SYSTEM 05 INTERIOR CONSTRUCTION

WBS QUANTITY IS FROM DOOR SCHEDULE

WBS QUANTITY IS FROM DOOR SCHEDULE

3.1.5 Auxiliary Hardware

Lever extension flush bolts shall be installed at the top and bottom of the inactive leaf of pairs of doors. The bottom bolt shall operate into a dust-proof floor strike or threshold.

3.1.6 Thresholds

Exterior thresholds shall be installed in a bed of sealant with stainless steel screws and expansion shields. Minimum screw size shall be No. 10, length dependent on job conditions.

3.1.7 Rain Drips

Door sill rain drips shall align with the bottom edge of the door. Overhead rain drips shall align with bottom edge of door frame rabbit. Drips shall be set in sealant and fastened with stainless steel screws.

3.1.8 Weatherseals

Weatherseals shall be located as indicated snug to door face and fastened in place with color matched metal screws after door and frames have been finish painted. Screw spacing shall be as recommended by manufacturer.

3.1.9 Gasketing

Gasketing shall be installed at the inside edge of the hinge, head and latch side of door frame. Frames shall be toleranced for an 1/8 inch clearance between door and frame. Frames shall be treated with tape primer prior to installation.

3.2 HARDWARE SETS

			No. of Sets
HW-1	3 Pr. Butts	A8111	2 EA
	2 Exit Devices	Type 6 F05 Grade 1	
	2 Closers	C02061 PT-4D (PT-4F @ Door No. 03)	
	1 Threshold	J32130 (Aluminum)	
	2 Kick Plates (Push Side)	J102	
	2 Dustproof Strikes	L04021	
HW-2	3 Pr. Butts	A8111	2 EA
	1 Lockset	F13 (Active Leaf)	
	2 Flush Bolts	L14081 (Inactive Leaf)	
	2 Overhead Holders	C08511	
	1 Dustproof Strike	L04021	
	1 Threshold	J32130	
HW-3	3 Pr. Butts	A8111	
	2 Exit Devices	Type 6 F05 (No Lock to be Provided)	2 EA
	2 Closers	C02021 PT-4D (PT-4F @ Door No. 58)	
	2 Stops	L02101 or L02141	
	2 Kick Plates (Push Side)	J102	
	2 Dustproof Strikes	L04021 (No Threshold)	

Project: SEAMAN'S CHAPEL Location: KINGS BAY NAV FAC FY: 93 LI 010101 Date: 2 MAR 93 Page: ____

Facility: CHAPEL Facility Area: 17,175 UOM: SF Estimator: RGM Checked By: CHU

Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

Plate No. A-2 Specification No. ____

95 System: INTERIOR CONSTRUCTION

Quantity Take-Off
Assumptions and Calculations
Use Additional Sheets as Required

Sub-System	Assembly Cat	Assembly	WBS UoM	WBS Quantity	Description	Quantity per Unit	Unit of Msur	
01					PARTITIONS			
	01				FIXED PARTITIONS			
		05	SF	832	3-5/8" STEEL STUD W/			104 LF x 8' HT = 832 SF
					GYP. BOARD ONE SIDE	1	SF	
					METAL STUD	1	SF	
					5/8" DRYWALL	1	SF	
					TAPE & FINISH	1	SF	
01								
	01							
		06		100	6" STEEL STUD W/			
					GYP. BOARD BOTH SIDES	1	SF	10' Lg x 10' HT = 100 SF
					METAL STUD	1	SF	
					5/8" DRYWALL	2	SF	
					TAPE & FINISH	2	SF	

Project: SEAMAN'S CHAPEL Location: KINGS BAY NAV-FACILITY: 93LI 0101011 Date: 2 MARCH 93 Page:

Facility: CHAPEL Facility Area: 17,175 UOM: SF Estimator: T. GILL Checked By:

Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

Plate No. M-7/8 Specification No. ____

08 System: PLUMBING

Sub-System	Assembly Cat	Assembly	WBS UoM	WBS Quantity	Description	Quantity per Unit	Unit of Msur	Quantity Take-Off Assumptions and Calculations **Use Additional Sheets as Required**
01					PLUMBING FIXTURES		EA	
	01				WATER CLOSETS		EA	
		01	EA	9	WATERCLOSET, FL MTD	1	EA	* THE QUANTITY TAKE-OFF FOR THIS ASSEMBLY NEED ONLY BE THE NO. OF W.C.'S SHOWN ON THE PLUMBING PLANS.
					ROUGH-IN WATERCLOSET	1	EA	
					WATERCLOSET, FM	1	EA	
02					DOMESTIC WATER SUPPLY	1	LS	
	01				PIPES & FITTINGS			
		01	LF	240	1/2" CU PIPE, W/FITTINGS	10	LF	* THE QUANTITY TAKE-OFF FOR THIS ASSEMBLY IS SIMPLY THE TOTAL LINEAR FEET OF DOMESTIC HW AND/OR COLD WATER PIPE SHOWN ON THE PLUMBING PLANS (BY SIZE).
					1/2" CU PIPE	10	LF	
					1/2" 90 DEG ELL	1	EA	
					1/2" COUPLING	1	EA	
					1/2" HANGER	1	EA	

EXHIBIT A-9-7

Project: SEAMAN'S CHAPEL Location: KINGS BAY FY: 93 LI 0101011 Date: 25 FEB 93 Page:

Facility: CHAPEL Facility Area: 17,175 UOM: SF

Estimator: BROWN Checked By: PVR

Concept: ___ Preliminary: ___ Final: ✓ Corrected Final: ___ Modification: ___

Plate No. E6, E7 Specification No. 16415

11 System: ELEC. POWER & LIGHTING

02 SubSystem: LIGHTING & BRANCH WIRING

01 Assm.Category: BRANCH WIRING

01 Assembly: BUILDING BRANCH WIRING

	½" EMT #12	½" EMT #12	½" EMT #12	½" EMT #10		WP GFI	GFI		5-20	5-30	10-50	SM	CONNECT (M) ⅙-1 HP	(J) 4" SQ BOX W/COVER
E6	1360	140	275	97	86	2	24	2	-	-	-	6	10	15
DROPS	510	108	60											
E7	1005	341	122	-	106	-	20	1	1	2	1	5	5	21
	400	160	40											
	220	630	220											
	3495	1379	717	97	192	2	44	3	1	2	1	11	15	36
		5591												
		97												

½" EMT 5688 LF

5% WASTE ~ 284 LF

#12 THW

3495 x 3 = 10,485 LF
1379 x 4 = 5,516 LF
717 x 5 = 3,585 LF
19,586 LF
+ 5% SHRINKAGE 979 LF
20,565 LF

5% WASTE ≈ 1,000 LF

#10 THW

97 X 4 = 388 LF
5% SHRINKAGE 19
407 LF
5% WASTE 20 LF

ASSUMPTIONS

1 EA. ½ CONDUIT STRAP / 10 LF

½" CONNECTORS ≅ 1.5 X No. WIRING DEVICES

1 EA. 3' FLEX / MOTOR CONNECTION

Project: SEAMAN'S CHAPEL Location: KINGS BAY FY: 93 LI 0101011 Date: 25 FEB 93 Page: ____

Facility: CHAPEL Facility Area: 17,175 UOM: SF

11 System: ELEC. POWER & LIGHTING

Estimator: BROWN Checked By: PVR

02 SubSystem: LIGHTING & BRANCH WIRING

Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

01 Assm.Category: BRANCH WIRING

Plate No. E6, E7 Specification No. 16415

01 Assembly: BUILDING BRANCH WIRING

	30 A NF	100 A NF	400 A F
E6	3	1	—
E7	2	1	1
	5	2	1

EXHIBIT A-0-7

Project: SEAMAN'S CHAPEL Location: KINGS BAY FY: 93 LI 0101011 Date: 25 FEB 93 Page: ____

Facility: CHAPEL Facility Area: 17,175 UOM: SF

12 System: ELECTRICAL SYSTEMS

Estimator: BROWN Checked By: PVR

01 SubSystem: COMM., SECURITY & ALARM

Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

03 Assm.Category: TELEPHONE SYSTEM

Plate No. E8 Specification No. 16415

01 Assembly: TELEPHONE SYS. EMPTY CONDUIT

	1/2" EMT 1-#6	3/4" EMT	1" EMT	1 1/4" EMT	4" RGS	4" RGS ELL	(J) 4x2 1/2	(J) 4x4x4	EMPTY BOX	TBB	1/2" SET SCREW CONNECTOR	3/4" CONNECTOR	1" CONNECTOR	1 1/4" CONNECTOR
E8	175	440	512	420	340	16	15	4	37	1	2	60	22	8
DROPS	10	592	110	40	–									
	185	1032	622	460	340	16	15	4	37	1	2	60	22	8
WASTE 5%	10	52	30	23	–									

#6
195 LF
10 5% SHRINKAGE
205
10 5% WASTE

ASSUMPTIONS
1 EA CONDUIT STRAP/10LF

Project: SEAMAN'S CHAPEL Location: KINGS BAY NAVFAC FY: 93 LI 0101011 Date: 23 FEB 93 Page:

Facility: ELECTRIC SERVICE Facility Area: 1 UOM: LS Estimator: BROWN Checked By: PVR

Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

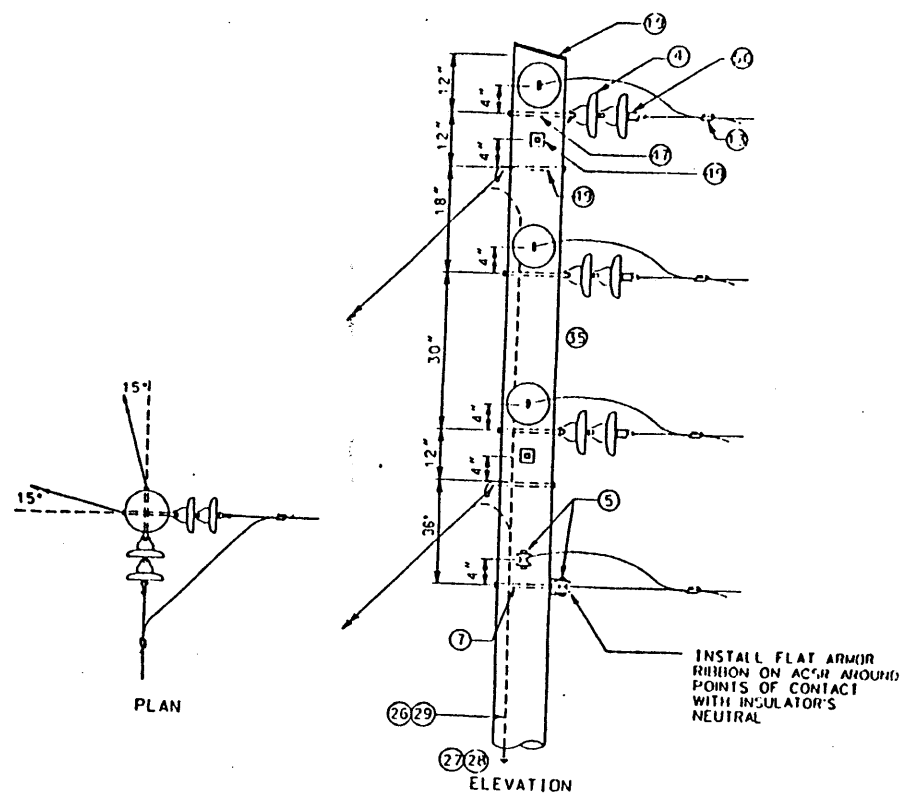
Plate No. E2, E13 Specification No. 16370

20 System: SITE ELECTRICAL UTILITIES

Sub-System	Assembly Cat	Assembly	WBS UoM	WBS Quantity	Description	Quantity per Unit	Unit of Msur
02					EXTERIOR ELECT. DISTRIB.		
	04				TOWERS, POLES, X-ARMS		
		01	EA	3	CORNER POLE 45/3 15KV	1	EA
					ARMLESS CONSTRUCTION		
					45/3 WOOD POLE	1	EA
					SPOOL INSULATOR	2	EA
					15KV SUSPENSION INSULATOR	6	EA
					5/8" X 16 THRU-BOLT	2	EA
					5/8" X 16 STRAIGHT THIMBLE	6	EA
					5/8" X 16 ANGLE THIMBLE	2	EA
					DOWN GUY	2	EA
					GUY STRAIN INSULATOR	2	EA
					2 1/4" WASHER	10	EA
					(POLE GND IN SEPARATE		
					ASSEMBLY)		

Quantity Take-Off
Assumptions and Calculations
Use Additional Sheets as Required

SEE POLE SCHEDULE



VERTICAL THREE PHASE DEAD END POLE

NOT TO SCALE

Project: SEAMAN'S CHAPEL Location: KINGS BAY NAVFAC FY: 93 LI 0101011 Date: 23 FEB 93 Page: ____

Facility: ELECTRIC SERVICE Facility Area: 1 UOM: LS Estimator: BROWN Checked By: PVR

Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

Plate No. ____ Specification No. 16370

20 System: SITE ELECTRICAL UTILITIES

Sub-System	Assembly Cat	Assembly	WBS UoM	WBS Quantity	Description	Quantity per Unit	Unit of Msur

Quantity Take-Off
Assumptions and Calculations
Use Additional Sheets as Required

SCHEDULE OF POLE EQUIPMENT

NO.	DESCRIPTION
1	HORIZONTAL LINE POST INSULATORS, TIE TOP 15 KV
1A	HORIZONTAL LINE POST INSULATOR, CLAMP TOP 15 KV
1B	POST INSULATOR CLAMP
2	POLE TOP PIN PRESSED STEEL AND PORCELAIN INSULATOR 15 KV
3	TWO POST INSULATOR BRACKET
4	INSULATOR SUSPENSION TYPE 15 KV
5	SECONDARY CLEVIS WITH SPOOL INSULATOR
6	STRAIN CLAMP
7	5/8" THRU-BOLT OF REQUIRED LENGTH, WITH LOCKNUTS AND 2 1/4" WASHER
8	RIGID CONDUIT RISER WITH END FITTING, 5" UNLESS OTHERWISE INDICATED, WITH LENGTH AS REQD
9	1/C TERMINATION, 15 KV
10	PRIMARY CONDUCTOR - 1/0 ACSR
11	STEEL SEALING BUSHING
12	SCREW LAG 1/2" X 4"
13	COMPRESSION CONNECTOR
14	DOWN GUY, 7 STRAND STEEL, GALVANIZED HIGH STRENGTH GRADE, AS INDICATED
15	STRAIN ANGLE CLAMPS
16	EYE BOLT 5/8" OF REQUIRED LENGTH, WITH NUT AND CURVED SQUARE WASHER
17	GUY FITTING
18	GUY GRIP
19	ALUMINUM POLE CAP 15" IN DIA. NAILS IN SIDE ONLY - USE 1-1/4" ALUMINUM NAILS
20	LAG BOLT 1/4"
21	FUSED CUT OUT 15 KV
22	INSULATOR FITTING, CONNECTOR CLEVIS, 30000 LBS ULTIMATE STRENGTH
23	LIGHTNING ARRESTOR 9 KV METAL OXIDE, DISTRIBUTION CLASS
24	POTHEAD MOUNTING BRACKET
25	STIRRUP, COMPRESSION TYPE AND HOT LINE CLAMP
26	NO. 4 SOLID COPPER
27	GROUND ROD
28	GROUND ROD CLAMP
29	HALF ROUND WOOD, PLASTIC OR FIBER MOLDING
30	PROVIDE SIDE TIE
31	PORCELAIN STANDOFF INSULATOR, 15 KV
32	THIMBLE EYE NUT
33	TRIMOUNT BRACKET FOR FUSED CUT-OUTS AND LIGHTNING ARRESTORS
34	
35	WOOD POLE, 45 FOOT, CLASS 3
36	
37	
38	
39	PROVIDE CONDUCTOR TIE
40	CABLE GRIP
41	STEEL CROSSARM
42	
43	
44	
45	
46	EXISTING TO REMAIN
47	5/8" CLEVIS BOLT OF REQUIRED LENGTH, WITH COTTER PIN AND HEX NUT
48	5/8" THIMBLE CLEVIS
49	5/8" THIMBLE BOLT OF REQUIRED LENGTH, WITH WASHER AND NUT
50	STRAIGHT STRAIN DEADEND CLAMP
51	
52	CLEVIS EYE EXTENSION LINK OF REQUIRED LENGTH

Project: SEAMAN'S CHAPEL Location: KINGS BAY NAVFAC FY: 93 LI 0101011 Date: 23 FEB 93 Page: ____

Facility: ELECTRIC SERVICE Facility Area: 1 UOM: LS Estimator: BROWN Checked By: PVR

Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

Plate No. E2, E14 Specification No. 16370

20 System: SITE ELECTRICAL UTILITIES

Sub-System	Assembly Cat	Assembly	WBS UoM	WBS Quantity	Description	Quantity per Unit	Unit of Msur
02					EXTERIOR ELEC. DISTRB.		
	04				TOWERS, POLES, X-ARMS		
		02	EA	2	RISER 4" GRC SINGLE COND	1	EA
					EXCAVATION	0.3333	CY
					TRIM BOTTOM	3	SF
					BACKFILL	0.1481	CY
					COMPACTION	0.1481	CY
					CONCRETE	0.2222	CY
					4" PVC ADAPTOR	1	EA
					4" RGC	30	LF
					4" " ELL	1	EA
					4" " LKN & BUSH	1	EA
					15KV POT HEAD	3	EA
					15KV STRESS CONE	3	EA
					15KV TERMINATIONS	3	EA

Quantity Take-Off
Assumptions and Calculations
Use Additional Sheets as Required

ASSUMPTIONS

CONTAINS 15KV POT HEADS, STRESS CONES AND TERMINATIONS FROM AERIAL TO UG.

EXCAVATION

$(1' \times 3' \times 3') \div 27 \frac{CF}{CY} = 0.3333 cy$

BACKFILL

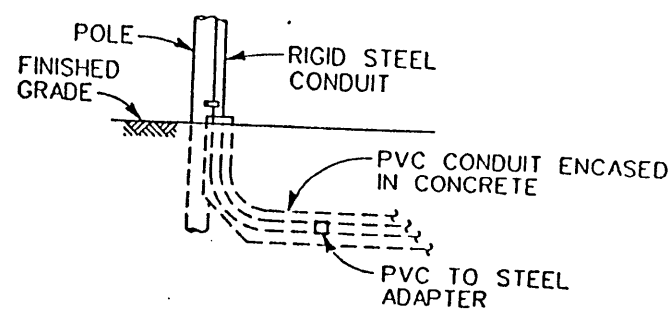
$(1' \times 2' \times 2') \div 27 \frac{CF}{CY} = 0.1481 cy$

CONCRETE

$(1' \times 1' \times 2') \div 27 \frac{CF}{CY} = 0.2222 cy$

NOTE:

THIS DETAIL IS TYPICAL FOR ALL CONDUIT TERMINATIONS AT THE PAD MOUNTED EQUIPMENT AND AT RISER POLES.



CONVERSION FROM PVC TO STEEL CONDUIT

NOT TO SCALE

8 E14 E14

Project: SEAMAN'S CHAPEL Location: KINGS BAY NAVFAC FY: 93 LI 0101011 Date: 23 FEB 93 Page: ____

Facility: ELECTRIC SERVICE Facility Area: 1 UOM: LS Estimator: BROWN Checked By: PVR

Concept: ____ Preliminary: ____ Final: ✓ Corrected Final: ____ Modification: ____

Plate No. E2, E14 Specification No. 16370

20 System: SITE ELECTRICAL UTILITIES

Sub-System	Assembly Cat	Assembly	WBS UoM	WBS Quantity	Description	Quantity per Unit	Unit of Msur
02					EXTERIOR ELECT. DISTRB.		
	06				DUCTBANKS, MHOLES, HHOLE		
		01	LF	450	2W-4" CONCRETE DB	1	LF
					EXCAVATE TRENCH	.1667	CY
					TRIM BOTTOM	1	SF
					4" PVC TYPE EB	2	LF
					4" BASE SPACERS	0.5	EA
					BACKFILL	0.125	CY
					COMPACTION	0.125	CY
					CONCRETE	0.038	CY

Quantity Take-Off
Assumptions and Calculations
Use Additional Sheets as Required

ASSUMPTIONS:

- QT BASED ON AVERAGE 100 LF OF DB.
- BASE SPACERS EVERY 4 LF
- STABLE SOIL - NO FORMS USED

EXCAVATION

$((1.5' \times 3' \times 1') \div 27 \frac{CF}{CY}) = .1667 CY$

BACKFILL / COMPACTION

$(1.5' \times 2.25' \times 1') \div 27 \frac{CF}{CY} = .125 CY$

200 LF of 4" PIPE / 100 FT DB. = 2'/1 LF

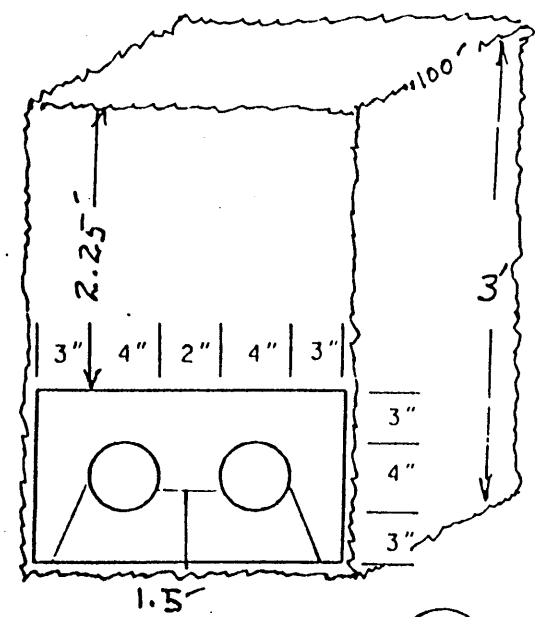
SPACERS

$(200 LF \div 4 \frac{LF}{EA}) \div 100 LF = .5 \frac{EA}{LF}$

CONCRETE

FROM TABLE USE 3.8 CY / 100 LF DB.

= 0.038 CY/LF



DETAIL 2 WAY DUCT BANK
NOT TO SCALE

9
E2 E14

Project:_____ _____Location:_____ _____FY:____LI:_____Date:_____ __Page:_____

Facility:_____Facility Area:_____UOM:_____ _____System:_____

Estimator:_____Checked By:_____ _____SubSystem:_____

Concept:____Preliminary:____Final:____Corrected Final:____Modification:____ _____Assy Cat:_____

Plate No._____ Specification No._____ _____Assembly:_____

EXHIBIT A-9-8
PAGE 1 OF 2

Chapel (Training Estimate)
Kings Bay Naval Facility, GA
FY-93 LI-0101011
DACA21-95-B-0051

Designed By: US Army Engr. Dist., SAVANNAH
Estimated By: US Army Engr. Dist., SAVANNAH

Prepared By: Brown, Filmer, Gill, Moody, Usher

Preparation Date: 01/14/96
Effective Date of Pricing: 02/01/95
Est Construction Time: 365 Days

Sales Tax: 6.00%

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This estimate is based on drawings and specifications dated April 1993, and Amendment No. 0001 dated 24 May 1993.

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	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
AA Primary Facilities (Base Bid)								
AA.01 Chapel Familly Life Center	17175.00 SF	1,476,604	132,548	56,320	121,996	21,450	1,808,918	105.32
TOTAL Primary Facilities (Base Bid)	1.00 EA	1,476,604	132,548	56,320	121,996	21,450	1,808,918	1808918
BA Support Facilities (Base Bid)								
BA.01 Electric Service		139,418	12,515	5,318	11,519	2,025	170,794	
BA.02 Water, Sewer & Gas		37,561	3,372	1,433	3,103	546	46,014	
BA.03 Steam And/Or Chilled Water Distr		4,499	404	172	372	65	5,511	
BA.04 Paving, Walks, Curbs, & Gutters		112,492	10,098	4,291	9,294	1,634	137,809	
BA.05 Storm Drainage		30,257	2,716	1,154	2,500	440	37,067	
BA.06 Site Improvements And Demolition		138,046	12,392	5,265	11,405	2,005	169,113	
BA.07 Information Systems		15,712	1,410	599	1,298	228	19,248	
TOTAL Support Facilities (Base Bid)		477,985	42,907	18,231	39,491	6,943	585,557	
TOTAL Chapel (Training Estimate)		1,954,589	175,455	74,552	161,487	28,393	2,394,475	
Escalation	1.62 %						38,787	
SUBTOTAL							2,433,262	
Contingency	5.00 %						121,663	
SUBTOTAL							2,554,925	
Supervision, Inspection, and Overhead	6.00 %						153,296	
TOTAL INCL OWNER COSTS							2,708,221	
********** ALTERNATES **********								
CA Additive No. 1 Parking Lot								
CA.04 Paving, Walks, Curbs, & Gutters		66,116	0	2,314	5,009	881	74,320	
TOTAL Additive No. 1 Parking Lot		66,116	0	2,314	5,009	881	74,320	
Escalation	1.62 %						1,204	
SUBTOTAL							75,524	
Contingency	5.00 %						3,776	
SUBTOTAL							79,300	
Supervision, Inspection, and Overhead	6.00 %						4,758	
TOTAL INCL OWNER COSTS							84,058	

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
DA Exterior Information System NIC		250,000	0	0	0	0	250,000	

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
AA Primary Facilities (Base Bid)								
AA.01 Chapel Familly Life Center								
AA.01.01 Substructure	17175.00 SF	70,811	6,356	2,701	5,850	1,029	86,747	5.05
AA.01.02 Superstructure	17175.00 SF	200,908	18,035	7,663	16,599	2,918	246,123	14.33
AA.01.03 Exterior Closure	10883.00 SF	203,284	18,248	7,754	16,795	2,953	249,034	22.88
AA.01.04 Roofing	17630.00 SF	70,618	6,339	2,694	5,834	1,026	86,511	4.91
AA.01.05 Interior Construction	17175.00 SF	238,806	21,437	9,108	19,730	3,469	292,549	17.03
AA.01.06 Interior Finishes	63874.00 SF	96,135	8,630	3,667	7,943	1,396	117,770	1.84
AA.01.08 Plumbing	17150.00 SF	56,983	5,115	2,173	4,708	828	69,808	4.07
AA.01.09 HVAC	456.00 MBH	193,784	17,395	7,391	16,010	2,815	237,396	520.60
AA.01.10 Fire Protection	17175.00 SF	29,748	2,670	1,135	2,458	432	36,442	2.12
AA.01.11 Electric Power And Lighting	17175.00 SF	161,317	14,481	6,153	13,328	2,343	197,621	11.51
AA.01.12 Electrical Systems	17175.00 SF	93,288	8,374	3,558	7,707	1,355	114,283	6.65
AA.01.15 Special Construction	894.00 SF	60,923	5,469	2,324	5,033	885	74,633	83.48
TOTAL Chapel Familly Life Center	17175.00 SF	1,476,604	132,548	56,320	121,996	21,450	1,808,918	105.32
TOTAL Primary Facilities (Base Bid)	1.00 EA	1,476,604	132,548	56,320	121,996	21,450	1,808,918	1808918
BA Support Facilities (Base Bid)								
BA.01 Electric Service								
BA.01.20 Site Electrical Utilities	1250.00 LF	139,418	12,515	5,318	11,519	2,025	170,794	136.64
TOTAL Electric Service		139,418	12,515	5,318	11,519	2,025	170,794	
BA.02 Water, Sewer & Gas								
BA.02.19 Site Civil/Mechanical Utilities	1.00 EA	37,561	3,372	1,433	3,103	546	46,014	46014.00
TOTAL Water, Sewer & Gas		37,561	3,372	1,433	3,103	546	46,014	
BA.03 Steam And/Or Chilled Water Distr								
BA.03.19 Site Civil/Mechanical Utilities	1.00 EA	4,499	404	172	372	65	5,511	5511.09
TOTAL Steam And/Or Chilled Water Distr		4,499	404	172	372	65	5,511	
BA.04 Paving, Walks, Curbs, & Gutters								
BA.04.18 Site Improvements	12600.00 SY	112,492	10,098	4,291	9,294	1,634	137,809	10.94
TOTAL Paving, Walks, Curbs, & Gutters		112,492	10,098	4,291	9,294	1,634	137,809	

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
BA.05 Storm Drainage								
BA.05.19 Site Civil/Mechanical Utilities		30,257	2,716	1,154	2,500	440	37,067	
TOTAL Storm Drainage		30,257	2,716	1,154	2,500	440	37,067	
BA.06 Site Improvements And Demolition								
BA.06.17 Site Preparation		68,864	6,182	2,627	5,690	1,000	84,363	
BA.06.18 Site Improvements		69,181	6,210	2,639	5,716	1,005	84,751	
TOTAL Site Improvements And Demolition		138,046	12,392	5,265	11,405	2,005	169,113	
BA.07 Information Systems								
BA.07.20 Site Electrical Utilities		15,712	1,410	599	1,298	228	19,248	
TOTAL Information Systems		15,712	1,410	599	1,298	228	19,248	
TOTAL Support Facilities (Base Bid)		477,985	42,907	18,231	39,491	6,943	585,557	
TOTAL Chapel (Training Estimate)		1,954,589	175,455	74,552	161,487	28,393	2,394,475	
Escalation	1.62 %						38,787	
SUBTOTAL							2,433,262	
Contingency	5.00 %						121,663	
SUBTOTAL							2,554,925	
Supervision, Inspection, and Overhead	6.00 %						153,296	
TOTAL INCL OWNER COSTS							2,708,221	
********** ALTERNATES **********								
CA Additive No. 1 Parking Lot								
CA.04 Paving, Walks, Curbs, & Gutters								
CA.04.18 Site Improvements	12600.00 SY	66,116	0	2,314	5,009	881	74,320	5.90
TOTAL Paving, Walks, Curbs, & Gutters		66,116	0	2,314	5,009	881	74,320	
TOTAL Additive No. 1 Parking Lot		66,116	0	2,314	5,009	881	74,320	
Escalation	1.62 %						1,204	

		QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
	SUBTOTAL							75,524	
	Contingency	5.00 %						3,776	
	SUBTOTAL							79,300	
	Supervision, Inspection, and Overhead	6.00 %						4,758	
	TOTAL INCL OWNER COSTS							84,058	
DA	Exterior Information System NIC		250,000	0	0	0	0	250,000	

	QUANTITY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
AA Primary Facilities (Base Bid)									
AA.01 Chapel Familly Life Center									
AA.01.01 Substructure									
AA.01.01.01 Standard Foundations									
AA.01.01.01.01 Wall Foundations									
AA.01.01.01.01.01 2'-0" Wide Continuous Footing	491.00	LF	6,702	602	256	554	97	8,211	16.72
AA.01.01.01.01.02 2'-6" Wide Continuous Footing	571.00	LF	9,614	863	367	794	140	11,778	20.63
AA.01.01.01.01.03 4" CMU Foundation wall	716.00	SF	5,063	455	193	418	74	6,203	8.66
AA.01.01.01.01.04 8" CMU Foundation Wall	2879.00	SF	17,519	1,573	668	1,447	254	21,461	7.45
AA.01.01.01.01.05 1" Thick Perimeter Insulation	1576.00	SF	1,622	146	62	134	24	1,987	1.26
TOTAL Wall Foundations	1062.00	LF	40,521	3,637	1,546	3,348	589	49,640	46.74
AA.01.01.01.02 Column Foundations & Pile Caps									
AA.01.01.01.02.01 5'-0" x 5'-0" Spread Footing	4.00	EA	1,089	98	42	90	16	1,334	333.56
AA.01.01.01.02.02 3'-0" x 3'-0" Spread Footing	6.00	EA	818	73	31	68	12	1,002	167.01
AA.01.01.01.02.03 3'-6"x 3'-6"x 12" Spread Footing	8.00	EA	1,446	130	55	119	21	1,771	221.37
TOTAL Column Foundations & Pile Caps	18.00	EA	3,353	301	128	277	49	4,107	228.18
TOTAL Standard Foundations	17175.00	SF	43,873	3,938	1,673	3,625	637	53,747	3.13
AA.01.01.03 Slab on Grade									
AA.01.01.03.01 Standard Slab on Grade									
AA.01.01.03.01.02 4" Thick Interior Concrete Slab	16821.00	SF	22,142	1,988	845	1,829	322	27,125	1.61
AA.01.01.03.01.03 Thickened Slab for Interior Wall	628.00	LF	4,795	430	183	396	70	5,874	9.35
TOTAL Standard Slab on Grade	16821.00	SF	26,937	2,418	1,027	2,226	391	33,000	1.96
TOTAL Slab on Grade	17175.00	SF	26,937	2,418	1,027	2,226	391	33,000	1.92
TOTAL Substructure	17175.00	SF	70,811	6,356	2,701	5,850	1,029	86,747	5.05
AA.01.02 Superstructure									
AA.01.02.01 Floor Construction									
AA.01.02.01.05 Ramps/Loading Dock									

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
AA.01.02.01.05.01 2'-0" Wide Continuous Footing	24.00 LF	328	29	12	27	5	401	16.72
AA.01.02.01.05.02 8" Reinforced Concrete Wall	144.00 SF	1,586	142	60	131	23	1,943	13.49
AA.01.02.01.05.03 Compacted Earthwork Below Slab	14.00 SF	110	10	4	9	2	135	9.61
AA.01.02.01.05.04 6" Reinf. Loading Dock Slab	64.00 SF	907	81	35	75	13	1,111	17.36
AA.01.02.01.05.05 Handrailing	28.00 LF	971	87	37	80	14	1,190	42.50
AA.01.02.01.05.06 4'0" Wide Steps - First Floor	28.00 LF	783	70	30	65	11	960	34.27
AA.01.02.01.05.07 Dock Bumpers		306	27	12	25	4	375	
TOTAL Ramps/Loading Dock	78.00 SF	4,991	448	190	412	72	6,114	78.38
TOTAL Floor Construction	17175.00 SF	4,991	448	190	412	72	6,114	0.36
AA.01.02.02 Roof Construction								
AA.01.02.02.01 Structural Frame								
AA.01.02.02.01.01 Structural Steel Columns	6.50 TON	9,482	851	362	783	138	11,616	1787.12
AA.01.02.02.01.02 Structural Steel Beams	35.00 TON	56,061	5,032	2,138	4,632	814	68,677	1962.21
AA.01.02.02.01.03 Bar Joists	10.85 TON	16,211	1,455	618	1,339	235	19,859	1830.33
AA.01.02.02.01.04 Steel Truss Type 1	4.00 EA	4,966	446	189	410	72	6,084	1521.01
AA.01.02.02.01.05 Steel Truss Type 2	8.00 EA	26,354	2,366	1,005	2,177	383	32,285	4035.65
AA.01.02.02.01.06 Steel Truss Type 3	11.00 EA	9,778	878	373	808	142	11,979	1088.99
TOTAL Structural Frame	15640.00 SF	122,853	11,028	4,686	10,150	1,785	150,501	9.62
AA.01.02.02.02 Structural Interior Walls								
AA.01.02.02.02.01 8" CMU Wall	7029.00 SF	41,591	3,733	1,586	3,436	604	50,952	7.25
TOTAL Structural Interior Walls	7029.00 SF	41,591	3,733	1,586	3,436	604	50,952	7.25
AA.01.02.02.03 Roof Decks and Slabs								
AA.01.02.02.03.01 Metal Roof Decking	17630.00 SF	26,152	2,348	997	2,161	380	32,037	1.82
AA.01.02.02.03.02 Treated Wood Blocking	3440.00 BF	5,322	478	203	440	77	6,519	1.90
TOTAL Roof Decks and Slabs	15640.00 SF	31,473	2,825	1,200	2,600	457	38,557	2.47
TOTAL Roof Construction	17630.00 SF	195,917	17,587	7,473	16,187	2,846	240,009	13.61
TOTAL Superstructure	17175.00 SF	200,908	18,035	7,663	16,599	2,918	246,123	14.33
AA.01.03 Exterior Closure								
AA.01.03.01 Exterior Walls								
AA.01.03.01.01 Exterior Skin								

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
AA.01.03.01.01.01 8" CMU Wall W/Brick Veneer	10293.00 SF	118,826	10,667	4,532	9,817	1,726	145,568	14.14
AA.01.03.01.01.02 Precast Concrete Window Sill	165.00 LF	3,207	288	122	265	47	3,928	23.81
AA.01.03.01.01.03 Precast Concrete Perimeter Band	536.00 LF	7,145	641	273	590	104	8,753	16.33
TOTAL Exterior Skin	10293.00 SF	129,178	11,596	4,927	10,673	1,876	158,250	15.37
AA.01.03.01.02 Insulation and Vapor Barrier								
AA.01.03.01.02.01 1" Rigid Insulation	10298.00 SF	7,429	667	283	614	108	9,101	0.88
AA.01.03.01.02.02 6" Batt Insulation	140.00 SF	79	7	3	6	1	96	0.69
TOTAL Insulation and Vapor Barrier	10298.00 SF	7,508	674	286	620	109	9,197	0.89
AA.01.03.01.04 Parapets								
AA.01.03.01.04.01 Precast Conc. Coping/14" wall	735.00 LF	20,544	1,844	784	1,697	298	25,167	34.24
TOTAL Parapets	735.00 LF	20,544	1,844	784	1,697	298	25,167	34.24
AA.01.03.01.05 Exterior Louvers and Screens								
AA.01.03.01.05.01 Exterior Fixed Louvers	35.00 SF	820	74	31	68	12	1,004	28.69
TOTAL Exterior Louvers and Screens	35.00 SF	820	74	31	68	12	1,004	28.69
TOTAL Exterior Walls	10298.00 SF	158,049	14,187	6,028	13,058	2,296	193,619	18.80
AA.01.03.02 Exterior Windows								
AA.01.03.02.01 Windows								
AA.01.03.02.01.01 1'x4' Fixed Insulated Windows	9.00 EA	843	76	32	70	12	1,032	114.70
AA.01.03.02.01.02 4'x5' D/H Insulated Windows	9.00 EA	4,421	397	169	365	64	5,415	601.72
AA.01.03.02.01.03 3'x5' D/H Insulated Windows	39.00 EA	14,462	1,298	552	1,195	210	17,717	454.27
TOTAL Windows	333.00 SF	19,725	1,771	752	1,630	287	24,164	72.57
TOTAL Exterior Windows	333.00 SF	19,725	1,771	752	1,630	287	24,164	72.57
AA.01.03.03 Exterior Personnel Doors								
AA.01.03.03.01 Glazed Doors								
AA.01.03.03.01.01 Pair 3'x7' Glass Entrance Doors	5.00 EA	20,700	1,858	790	1,710	301	25,359	5071.82
TOTAL Glazed Doors	5.00 EA	20,700	1,858	790	1,710	301	25,359	5071.82

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
AA.01.03.03.02 Solid Doors								
AA.01.03.03.02.01 Dbl. 3'0"x 7' HM Door In Masonry	1.00 EA	663	60	25	55	10	813	812.52
AA.01.03.03.02.02 Pr 3'0'x 7' HM Louver In Masonry	1.00 EA	900	81	34	74	13	1,102	1102.45
AA.01.03.03.02.03 Hardware Set No. 2	2.00 EA	788	71	30	65	11	965	482.45
AA.01.03.03.02.04 Hardware Set No. 3	2.00 EA	2,458	221	94	203	36	3,012	1505.79
TOTAL Solid Doors	2.00 EA	4,809	432	183	397	70	5,891	2945.72
TOTAL Exterior Personnel Doors	7.00 EA	25,510	2,290	973	2,108	371	31,251	4464.37
TOTAL Exterior Closure	10883.00 SF	203,284	18,248	7,754	16,795	2,953	249,034	22.88
AA.01.04 Roofing								
AA.01.04.01 Roofing								
AA.01.04.01.01 Roof Coverings								
AA.01.04.01.01.01 Asphalt Shingle Roofing	8555.00 SF	5,604	503	214	463	81	6,865	0.80
AA.01.04.01.01.02 Elastomeric Roofing	9075.00 SF	15,547	1,396	593	1,284	226	19,045	2.10
TOTAL Roof Coverings	17630.00 SF	21,150	1,899	807	1,747	307	25,910	1.47
AA.01.04.01.03 Roof Insulation and Fill								
AA.01.04.01.03.01 Rigid Roof Insulation	9075.00 SF	13,076	1,174	499	1,080	190	16,018	1.77
AA.01.04.01.03.02 3" Nailable Rigid Insulation	8555.00 SF	17,342	1,557	661	1,433	252	21,245	2.48
TOTAL Roof Insulation and Fill	17630.00 SF	30,418	2,730	1,160	2,513	442	37,263	2.11
AA.01.04.01.04 Flashings and Trim								
AA.01.04.01.04.01 Aluminum Flashings and Trim	735.00 SF	1,748	157	67	144	25	2,141	2.91
TOTAL Flashings and Trim	735.00 SF	1,748	157	67	144	25	2,141	2.91
AA.01.04.01.05 Roofing Openings								
AA.01.04.01.05.01 Skylights	400.00 SF	15,866	1,424	605	1,311	230	19,437	48.59
TOTAL Roofing Openings	400.00 SF	15,866	1,424	605	1,311	230	19,437	48.59
AA.01.04.01.06 Gutters and Downspouts								
AA.01.04.01.06.01 5" Aluminum Gutter	184.00 LF	442	40	17	37	6	542	2.95

		QUANTITY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
AA.01.04.01.06.02	4"x5" Retangular Cor. Downspout	60.00	LF	163	15	6	14	2	200	3.34
AA.01.04.01.06.03	Concrete Splashblocks	16.00	EA	58	5	2	5	1	71	4.43
AA.01.04.01.06.04	Thru Wall Scupper	4.00	EA	356	32	14	29	5	436	109.06
AA.01.04.01.06.05	Conductor Head	4.00	EA	417	37	16	34	6	510	127.57
TOTAL	Gutters and Downspouts	244.00	LF	1,436	129	55	119	21	1,760	7.21
TOTAL	Roofing	17630.00	SF	70,618	6,339	2,694	5,834	1,026	86,511	4.91
TOTAL	Roofing	17630.00	SF	70,618	6,339	2,694	5,834	1,026	86,511	4.91
AA.01.05	Interior Construction									
AA.01.05.01	Partitions									
AA.01.05.01.01	Fixed Partitions									
AA.01.05.01.01.01	6" CMU Wall	1066.00	SF	5,828	523	222	482	85	7,140	6.70
AA.01.05.01.01.02	8" CMU Wall	8302.00	SF	49,124	4,410	1,874	4,059	714	60,179	7.25
AA.01.05.01.01.03	Type 8 Steel Stud Partition	150.00	SF	292	26	11	24	4	357	2.38
AA.01.05.01.01.04	Type 9 Steel Stud Partition	27880.00	SF	70,253	6,306	2,680	5,804	1,021	86,063	3.09
AA.01.05.01.01.05	3" Stud w/Gyp. Bd. one side	832.00	SF	1,692	152	65	140	25	2,073	2.49
AA.01.05.01.01.06	6" Stud w/Gyp. Bd. Two sides	100.00	SF	201	18	8	17	3	246	2.46
TOTAL	Fixed Partitions	37498.00	SF	127,390	11,435	4,859	10,525	1,851	156,059	4.16
AA.01.05.01.02	Retractable Partitions									
AA.01.05.01.02.01	Retractable Partitions	304.00	SF	9,273	832	354	766	135	11,360	37.37
TOTAL	Retractable Partitions	304.00	SF	9,273	832	354	766	135	11,360	37.37
AA.01.05.01.05	Interior Windows									
AA.01.05.01.05.01	Fixed Interior Windows	103.00	EA	1,586	142	61	131	23	1,943	18.87
AA.01.05.01.05.02	One Way Mirrow	16.00	SF	619	56	24	51	9	758	47.40
TOTAL	Interior Windows	119.00	SF	2,205	198	84	182	32	2,702	22.70
TOTAL	Partitions	37921.00	SF	138,868	12,466	5,297	11,473	2,017	170,121	4.49
AA.01.05.02	Interior Personnel Doors									
AA.01.05.02.01	Standard Interior Doors									
AA.01.05.02.01.01	3x7 SC Door In Masonry	10.00	EA	3,449	310	132	285	50	4,226	422.57
AA.01.05.02.01.02	3x7 SC Door In Stud Wall	9.00	EA	2,928	263	112	242	43	3,588	398.61

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
TOTAL Ceiling and Ceiling Finishes	18241.00 SF	38,348	3,442	1,463	3,168	557	46,978	2.58
TOTAL Interior Finishes	63874.00 SF	96,135	8,630	3,667	7,943	1,396	117,770	1.84
AA.01.08 Plumbing								
AA.01.08.01 Plumbing Fixtures								
AA.01.08.01.01 Waterclosets								
AA.01.08.01.01.01 Watercloset, Floor Mtd	9.00 EA	5,096	457	194	421	74	6,243	693.69
TOTAL Waterclosets	9.00 EA	5,096	457	194	421	74	6,243	693.69
AA.01.08.01.02 Urinals								
AA.01.08.01.02.01 Urinal, Wall Hung	2.00 EA	1,216	109	46	100	18	1,489	744.67
TOTAL Urinals	2.00 EA	1,216	109	46	100	18	1,489	744.67
AA.01.08.01.03 Lavatories								
AA.01.08.01.03.01 Lavatory, VC, WH Wheelchair Type	1.00 EA	695	62	26	57	10	851	851.13
AA.01.08.01.03.02 Lavatory, VC, Countertop	6.00 EA	2,144	192	82	177	31	2,627	437.78
TOTAL Lavatories	7.00 EA	2,839	255	108	235	41	3,478	496.83
AA.01.08.01.04 Sinks								
AA.01.08.01.04.01 Class Sink, P-4	14.00 EA	5,998	538	229	496	87	7,348	524.85
AA.01.08.01.04.03 Service Sink, P-5	1.00 EA	723	65	28	60	11	886	885.51
AA.01.08.01.04.04 Kitchen Sink, P-8	1.00 EA	2,306	207	88	191	34	2,825	2825.41
TOTAL Sinks	16.00 EA	9,027	810	344	746	131	11,059	691.18
AA.01.08.01.05 Showers								
AA.01.08.01.05.02 Shower, Wall P-6 W/Receptor	2.00 EA	1,692	152	65	140	25	2,073	1036.41
TOTAL Showers	2.00 EA	1,692	152	65	140	25	2,073	1036.41
AA.01.08.01.06 Water Coolers								
AA.01.08.01.06.01 Water Cooler, WH P-7	3.00 EA	2,376	213	91	196	35	2,910	970.04

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
TOTAL Water Coolers	3.00 EA	2,376	213	91	196	35	2,910	970.04
TOTAL Plumbing Fixtures	39.00 EA	22,246	1,997	848	1,838	323	27,252	698.77
AA.01.08.02 Domestic Water Supply								
AA.01.08.02.01 Pipes and Fittings								
AA.01.08.02.01.01 1/2" Copper Pipe, W/Fittings	240.00 LF	1,044	94	40	86	15	1,279	5.33
AA.01.08.02.01.02 3/4" Copper Pipe, W/Fittings	590.00 LF	3,156	283	120	261	46	3,866	6.55
AA.01.08.02.01.03 1" Copper Pipe, W/Fittings	140.00 LF	920	83	35	76	13	1,127	8.05
AA.01.08.02.01.04 1-1/4" Copper Pipe, W/Fittings	100.00 LF	776	70	30	64	11	951	9.51
AA.01.08.02.01.05 1-1/2" Copper Pipe, W/Fittings	140.00 LF	1,244	112	47	103	18	1,524	10.88
AA.01.08.02.01.06 2" Copper Pipe, W/Fittings	200.00 LF	2,273	204	87	188	33	2,785	13.92
AA.01.08.02.01.07 2-1/2" Copper Pipe, W/Fittings	150.00 LF	2,243	201	86	185	33	2,747	18.32
AA.01.08.02.01.08 3" Copper Pipe, W/Fittings	30.00 LF	552	50	21	46	8	676	22.55
AA.01.08.02.01.10 Flush, Clean & Test Piping	1.00 EA	270	24	10	22	4	330	330.33
TOTAL Pipes and Fittings	39.00 EA	12,477	1,120	476	1,031	181	15,286	391.94
AA.01.08.02.02 Valves and Hydrants								
AA.01.08.02.02.01 Gate Valves	17.00 EA	1,117	100	43	92	16	1,368	80.47
AA.01.08.02.02.02 Globe Valves	2.00 EA	62	6	2	5	1	75	37.75
AA.01.08.02.02.03 Check Valves	1.00 EA	80	7	3	7	1	98	98.16
AA.01.08.02.02.04 Hose Bibbs	2.00 EA	25	2	1	2	0	30	15.09
AA.01.08.02.02.05 Wall Hydrants	5.00 EA	928	83	35	77	13	1,137	227.45
TOTAL Valves and Hydrants	27.00 EA	2,211	199	84	183	32	2,709	100.34
AA.01.08.02.04 Insulation & Identification								
AA.01.08.02.04.01 Pipe Insulation	27.00 EA	3,702	332	141	306	54	4,535	167.96
TOTAL Insulation & Identification	27.00 EA	3,702	332	141	306	54	4,535	167.96
AA.01.08.02.05 Specialties								
AA.01.08.02.05.01 Water Hammer Arrestors		215	19	8	18	3	263	
AA.01.08.02.05.02 Backflow Preventers		295	27	11	24	4	362	
AA.01.08.02.05.04 Pressure Gauge(s)	4.00 EA	172	15	7	14	2	211	52.67
AA.01.08.02.05.05 Wall & Floor Sleeves	1.00 EA	226	20	9	19	3	276	276.50
TOTAL Specialties	4.00 EA	908	81	35	75	13	1,112	278.00
TOTAL Domestic Water Supply	39.00 EA	19,299	1,732	736	1,594	280	23,642	606.20

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
TOTAL Standpipe Equipment		850	76	32	70	12	1,041	
TOTAL Standpipe Systems	1.00 EA	850	76	32	70	12	1,041	1040.99
TOTAL Fire Protection	17175.00 SF	29,748	2,670	1,135	2,458	432	36,442	2.12
AA.01.11 Electric Power And Lighting								
AA.01.11.01 Service and Distribution								
AA.01.11.01.05 Panels and Service to Panels								
AA.01.11.01.05.01 Service to Panels	1725.00 AMP	16,825	1,510	642	1,390	244	20,611	11.95
AA.01.11.01.05.10 Panels	1725.00 AMP	17,251	1,549	658	1,425	251	21,133	12.25
TOTAL Panels and Service to Panels	1725.00 AMP	34,076	3,059	1,300	2,815	495	41,745	24.20
TOTAL Service and Distribution	1725.00 AMP	34,076	3,059	1,300	2,815	495	41,745	24.20
AA.01.11.02 Lighting and Branch Wiring								
AA.01.11.02.01 Branch Wiring								
AA.01.11.02.01.01 Building Branch Wiring	1725.00 AMP	27,958	2,510	1,066	2,310	406	34,250	19.86
TOTAL Branch Wiring	1725.00 AMP	27,958	2,510	1,066	2,310	406	34,250	19.86
AA.01.11.02.02 Lighting Equipment								
AA.01.11.02.02.01 Building Lighting Systems	1725.00 AMP	99,282	8,912	3,787	8,203	1,442	121,626	70.51
TOTAL Lighting Equipment	1725.00 AMP	99,282	8,912	3,787	8,203	1,442	121,626	70.51
TOTAL Lighting and Branch Wiring	1725.00 AMP	127,241	11,422	4,853	10,513	1,848	155,876	90.36
TOTAL Electric Power And Lighting	17175.00 SF	161,317	14,481	6,153	13,328	2,343	197,621	11.51
AA.01.12 Electrical Systems								
AA.01.12.01 Communication, Security & Alarm								
AA.01.12.01.01 Fire Alarm Systems								
AA.01.12.01.01.01 Building Fire Detection System	1.00 EA	13,446	1,207	513	1,111	195	16,472	16471.95
TOTAL Fire Alarm Systems	17175.00 SF	13,446	1,207	513	1,111	195	16,472	0.96

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
AA.01.12.01.03 Telephone Systems								
AA.01.12.01.03.01 Telephone Systems Empty Conduit	37.00 EA	21,999	1,975	839	1,818	320	26,950	728.37
TOTAL Telephone Systems	37.00 OUT	21,999	1,975	839	1,818	320	26,950	728.37
AA.01.12.01.04 Public Address Systems								
AA.01.12.01.04.01 Public Address System "A"	1.00 EA	2,230	200	85	184	32	2,732	2732.21
AA.01.12.01.04.02 Public Address System "B"	1.00 EA	10,701	961	408	884	155	13,109	13108.83
TOTAL Public Address Systems	17175.00 SF	12,931	1,161	493	1,068	188	15,841	0.92
AA.01.12.01.05 Intercommunication Systems								
AA.01.12.01.05.01 2 Station Intercom Systom	1.00 EA	1,359	122	52	112	20	1,664	1664.27
TOTAL Intercommunication Systems	1.00 EA	1,359	122	52	112	20	1,664	1664.27
AA.01.12.01.07 Television Systems								
AA.01.12.01.07.01 Television Systems Empty Conduit	1.00 EA	20,291	1,821	774	1,676	295	24,858	24857.74
TOTAL Television Systems	1.00 OUT	20,291	1,821	774	1,676	295	24,858	24857.74
AA.01.12.01.08 Security Systems								
AA.01.12.01.08.01 Intrusion Detection System	1.00 SYS	11,755	1,055	448	971	171	14,400	14400.16
TOTAL Security Systems	1.00 SYS	11,755	1,055	448	971	171	14,400	14400.16
TOTAL Communication, Security & Alarm	17175.00 SF	81,780	7,341	3,119	6,757	1,188	100,185	5.83
AA.01.12.02 Special Electrical Systems								
AA.01.12.02.04 Lightning Protection								
AA.01.12.02.04.01 Counterpoise Sys- Trnch,BF,1/0Cu	640.00 LF	925	83	35	76	13	1,133	1.77
AA.01.12.02.04.10 Building Lightning Protection	1.00 EA.	10,584	950	404	874	154	12,966	12965.59
TOTAL Lightning Protection	17175.00 SF	11,508	1,033	439	951	167	14,098	0.82
TOTAL Special Electrical Systems	17175.00 SF	11,508	1,033	439	951	167	14,098	0.82
TOTAL Electrical Systems	17175.00 SF	93,288	8,374	3,558	7,707	1,355	114,283	6.65

	QUANTITY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
TOTAL Switches, Controls & Devices	4.00 EA	42,540	3,819	1,623	3,515	618	52,114	13028.49
BA.01.20.02.03 Overhead Electric Conductors								
BA.01.20.02.03.01 ACSR Conductors	2400.00 LF	1,455	131	55	120	21	1,782	0.74
TOTAL Overhead Electric Conductors	2400.00 LF	1,455	131	55	120	21	1,782	0.74
BA.01.20.02.04 Towers, Poles, Crossarms &								
BA.01.20.02.04.01 Corner Pole 45/3 15KV Armless	3.00 EA	4,881	438	186	403	71	5,980	1993.23
BA.01.20.02.04.02 Riser 4" GRS Single Conduit	2.00 EA	10,135	910	387	837	147	12,415	6207.68
BA.01.20.02.04.03 Stright Line 45/3 15KV Cross Arm	3.00 EA	1,374	123	52	114	20	1,684	561.17
BA.01.20.02.04.04 Dead End 45/3 15KV 3P Cross Arm	1.00 EA	978	88	37	81	14	1,198	1197.97
BA.01.20.02.04.05 Pole Grounding Double Ground	5.00 EA	1,487	133	57	123	22	1,821	364.22
TOTAL Towers, Poles, Crossarms &	7.00 EA	18,854	1,692	719	1,558	274	23,098	3299.66
BA.01.20.02.05 Underground Electric Conductors								
BA.01.20.02.05.01 UG 15KV Primary Conductors	1918.00 LF	7,346	659	280	607	107	9,000	4.69
TOTAL Underground Electric Conductors	1918.00 LF	7,346	659	280	607	107	9,000	4.69
BA.01.20.02.06 Ductbanks,Manholes,Handholes &								
BA.01.20.02.06.01 2W-4" Concrete Encased Duck Bank	450.00 LF	5,688	511	217	470	83	6,969	15.49
TOTAL Ductbanks,Manholes,Handholes &	1.00 EA	5,688	511	217	470	83	6,969	6968.50
TOTAL Exterior Electrical Distribution	1250.00 LF	92,626	8,315	3,533	7,653	1,346	113,472	90.78
BA.01.20.03 Exterior Lighting								
BA.01.20.03.03 Towers, Poles, Crossarms &								
BA.01.20.03.03.01 2' x 2' x 4' Concrete base	18.00 EA	5,462	490	208	451	79	6,691	371.71
BA.01.20.03.03.10 Light Poles Al	18.00 EA	22,646	2,033	864	1,871	329	27,743	1541.27
TOTAL Towers, Poles, Crossarms &	18.00 EA	28,108	2,523	1,072	2,322	408	34,434	1912.98
BA.01.20.03.04 Underground Electric Conductors								
BA.01.20.03.04.01 UG Lighting Conductors	5954.00 LF	1,850	166	71	153	27	2,266	0.38

	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST
<<< No Division ID >>>	254,230	380	161	349	61	255,182
01 General Requirements	384	34	15	32	6	470
02 Site Work	355,794	26,003	13,363	28,942	5,089	429,192
03 Concrete	90,645	8,137	3,457	7,489	1,317	111,045
04 Masonry	250,193	22,459	9,543	20,671	3,634	306,499
05 Metals	162,367	14,575	6,193	13,415	2,359	198,909
06 Wood And Plastic	38,496	3,456	1,468	3,180	559	47,159
07 Thermal And Moisture Protection	100,843	9,052	3,846	8,332	1,465	123,537
08 Doors And Windows	83,976	7,538	3,203	6,938	1,220	102,876
09 Finishes	154,539	13,872	5,894	12,768	2,245	189,319
10 Specialties	35,865	3,219	1,368	2,963	521	43,937
11 Equipment	28,704	2,577	1,095	2,371	417	35,163
12 Furnishings	20,496	1,840	782	1,693	298	25,109
13 Special Construction	25,215	2,263	962	2,083	366	30,890
15 Mechanical	262,319	23,547	10,005	21,673	3,811	321,355
16 Electrical	406,639	36,502	15,510	33,596	5,907	498,154
	2,270,705	175,455	76,866	166,496	29,274	2,718,795

		DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST
AA. Primary Facilities (Base Bid)							
	01 General Requirements	384	34	15	32	6	470
	02 Site Work	9,281	833	354	767	135	11,369
	03 Concrete	76,423	6,860	2,915	6,314	1,110	93,622
	04 Masonry	239,516	21,500	9,136	19,789	3,479	293,420
	05 Metals	157,470	14,135	6,006	13,010	2,287	192,910
	06 Wood And Plastic	38,496	3,456	1,468	3,180	559	47,159
	07 Thermal And Moisture Protection	100,843	9,052	3,846	8,332	1,465	123,537
	08 Doors And Windows	83,976	7,538	3,203	6,938	1,220	102,876
	09 Finishes	154,539	13,872	5,894	12,768	2,245	189,319
	10 Specialties	35,865	3,219	1,368	2,963	521	43,937
	11 Equipment	28,704	2,577	1,095	2,371	417	35,163
	12 Furnishings	20,496	1,840	782	1,693	298	25,109
	13 Special Construction	25,215	2,263	962	2,083	366	30,890
	15 Mechanical	251,155	22,545	9,580	20,750	3,648	307,678
	16 Electrical	254,242	22,822	9,697	21,005	3,693	311,459
		1,476,604	132,548	56,320	121,996	21,450	1,808,918
BA. Support Facilities (Base Bid)							
	<<< No Division ID >>>	4,230	380	161	349	61	5,182
	02 Site Work	280,398	25,170	10,695	23,166	4,073	343,502
	03 Concrete	14,222	1,277	542	1,175	207	17,423
	04 Masonry	10,677	958	407	882	155	13,079
	05 Metals	4,897	440	187	405	71	5,999
	15 Mechanical	11,164	1,002	426	922	162	13,677
	16 Electrical	152,397	13,680	5,813	12,591	2,214	186,695
		477,985	42,907	18,231	39,491	6,943	585,557
CA. Additive No. 1 Parking Lot							
	02 Site Work	66,116		2,314	5,009	881	74,320
		66,116	0	2,314	5,009	881	74,320
DA. Exterior Information System NIC							
	<<< No Division ID >>>	250,000					250,000
		250,000	0	0	0	0	250,000

	QUANTITY	UOM	** CONTRACT ** TOTAL	UNIT	** CONTRACT ** TOTAL	COL%
AA Primary Facilities						
AA.01 Chapel Familly Life Center						
AA.01.01 Substructure	17175.00	SF	86,747	5.05	86,747	4.8%
AA.01.02 Superstructure	17175.00	SF	246,123	14.33	246,123	13.6%
AA.01.03 Exterior Closure	10883.00	SF	249,034	22.88	249,034	13.8%
AA.01.04 Roofing	17630.00	SF	86,511	4.91	86,511	4.8%
AA.01.05 Interior Construction	17175.00	SF	292,549	17.03	292,549	16.2%
AA.01.06 Interior Finishes	75874.00	SF	117,770	1.55	117,770	6.5%
AA.01.08 Plumbing	17150.00	SF	69,808	4.07	69,808	3.9%
AA.01.09 HVAC	456.00	MBH	237,396	520.60	237,396	13.1%
AA.01.10 Fire Protection	17175.00	SF	36,442	2.12	36,442	2.0%
AA.01.11 Electric Power And Lighting	17175.00	SF	197,621	11.51	197,621	10.9%
AA.01.12 Electrical Systems	17175.00	SF	114,283	6.65	114,283	6.3%
AA.01.15 Special Construction	894.00	SF	74,633	83.48	74,633	4.1%
AA.01 Chapel Familly Life Center	17175.00	SF	1,808,918	105.32	1,808,918	100%
AA Primary Facilities	1.00	EA	1,808,918	1808918	1,808,918	66.5%
BA Support Facilities (ENG 3086)						
BA.01 Electric Service						
BA.01.20 Site Electrical Utilities	1250.00	LF	170,794	136.64	170,794	100%
BA.01 Electric Service	1.00	LS	170,794	170794	170,794	29.2%
BA.02 Water, Sewer & Gas						
BA.02.19 Site Civil/Mechanical Utilities	1.00	EA	46,014	46014.00	46,014	100%
BA.02 Water, Sewer & Gas	1.00	LS	46,014	46014.00	46,014	7.9%
BA.03 Steam And/Or Chilled Water Distr						
BA.03.19 Site Civil/Mechanical Utilities	1.00	EA	5,511	5511.09	5,511	100%
BA.03 Steam And/Or Chilled Water Distr	1.00	LS	5,511	5511.09	5,511	0.9%
BA.04 Paving, Walks, Curbs, & Gutters						
BA.04.18 Site Improvements	12600.00	SY	137,809	10.94	137,809	100%
BA.04 Paving, Walks, Curbs, & Gutters	1.00	LS	137,809	137809	137,809	23.5%
BA.05 Storm Drainage						
BA.05.19 Site Civil/Mechanical Utilities	1.00	LS	37,067	37066.99	37,067	100%
BA.05 Storm Drainage	1.00	LS	37,067	37066.99	37,067	6.3%
BA.06 Site Improvements And Demolition						
BA.06.17 Site Preparation	1.00	LS	84,363	84362.60	84,363	49.9%
BA.06.18 Site Improvements	1.00	LS	84,751	84750.68	84,751	50.1%
BA.06 Site Improvements And Demolition	1.00	LS	169,113	169113	169,113	28.9%

	QUANTITY UOM	** CONTRACT ** TOTAL	UNIT	** CONTRACT ** TOTAL	COL%
BA.07 Information Systems					
BA.07.20 Site Electrical Utilities	1.00 LS	19,248	19248.21	19,248	100%
BA.07 Information Systems	1.00 LS	19,248	19248.21	19,248	3.3%
BA Support Facilities (ENG 3086)	1.00 LS	585,557	585557	585,557	21.5%
CA Exterior Information System					
CA.00 <<< Not Identified >>>					
CA.00.00 <<< Not Identified >>>	1.00 LS	0		0	%
CA.00 <<< Not Identified >>>	1.00 LS	0		0	%
CA.04 Paving, Walks, Curbs, & Gutters					
CA.04.18 Site Improvements	12600.00 SY	74,320	5.90	74,320	100%
CA.04 Paving, Walks, Curbs, & Gutters	1.00 LS	74,320	74320.25	74,320	100%
CA Exterior Information System	1.00 LS	74,320	74320.25	74,320	2.7%
DA Exterior Information System NIC					
DA.00 <<< Not Identified >>>					
DA.00.00 <<< Not Identified >>>	1.00 LS	250,000	250000	250,000	100%
DA.00 <<< Not Identified >>>	1.00 LS	250,000	250000	250,000	100%
DA Exterior Information System NIC	1.00 LS	250,000	250000	250,000	9.2%
Chapel (Training Estimate)	1.00 LS	2,718,795	2718795	2,718,795	100%

	QUANTITY	UOM	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST
AA Prime Contractor								
AT Acustic Treatment Contractor			398	5,669	143	20,818	0	26,629
CA Carpeting Contractor			222	2,187	34	10,811	0	13,032
EL Electrical Contractor			6,403	96,968	6,403	223,272	0	326,643
FP Fire Protection Contractor			686	8,705	1,170	8,447	2,500	20,823
GW Gypsum Wallboard Contractor			1,246	17,794	475	13,623	0	31,893
HV HVAC Contractor			2,674	34,205	1,262	106,171	0	141,638
LP Lath, Plaster, Stucco Contractor			777	12,516	227	4,805	0	17,548
MA Masonry Contractor			8,121	128,583	1,856	105,305	0	235,744
MC Controls Contractor			113	1,865	15	16,634	0	18,514
ME Mechanical Contrator			929	10,076	3,146	21,538	0	34,760
MR Membrane Roofing Contractor			1,575	20,593	677	62,071	0	83,341
PL Plumbing Contractor			1,555	19,319	797	29,793	0	49,909
PS Painting and Sealants Contractor			740	7,735	231	8,942	0	16,908
RF Resilient Flooring Contractor			233	2,300	43	5,475	0	7,818
SM Sheetmetal Contractor			2	16	0	32	0	48
SS Structural Steel Contractor			1,774	31,583	5,159	95,342	0	132,084
SW Sitework Contractor			5,624	59,817	48,924	108,193	0	216,933
TI Tile Contractor			470	4,638	87	7,803	0	12,528
Subtotal Subcontract Work			33,540	464,568	70,650	849,076	2,500	1,386,793
Subcontracts Incl Indirect			33,540	567,939	85,903	1,040,126	3,163	1,697,131
Contractor's Own Work			4,026	51,695	2,536	203,228	0	257,458
AA Prime Contractor			37,567	619,634	88,438	1,243,354	3,163	1,954,589
AB Additive Prime								
S1 Additive Site Work Contractor			1,068	10,975	11,229	32,438	0	54,641
Subtotal Subcontract Work			1,068	10,975	11,229	32,438	0	54,641
Subcontracts Incl Indirect			1,068	13,279	13,587	39,250	0	66,116
AB Additive Prime			1,068	13,279	13,587	39,250	0	66,116
A1 Work Not in Contract	1.00	EA	0	0	0	0	250,000	250,000

	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL CST	UNIT COST
AA Prime Contractor							
AT Acustic Treatment Contractor	26,629	2,663	0	2,929	0	32,222	
CA Carpeting Contractor	13,032	1,303	0	1,434	0	15,769	
EL Electrical Contractor	326,643	48,996	0	37,564	0	413,203	
FP Fire Protection Contractor	20,823	3,123	0	2,395	0	26,341	
GW Gypsum Wallboard Contractor	31,893	3,189	0	3,508	0	38,590	
HV HVAC Contractor	141,638	14,164	0	15,580	0	171,382	
LP Lath, Plaster, Stucco Contractor	17,548	1,755	0	1,930	0	21,233	
MA Masonry Contractor	235,744	23,574	0	25,932	0	285,250	
MC Controls Contractor	18,514	1,851	0	2,037	0	22,402	
ME Mechanical Contrator	34,760	3,476	0	3,824	0	42,059	
MR Membrane Roofing Contractor	83,341	8,334	0	9,168	0	100,843	
PL Plumbing Contractor	49,909	4,991	0	5,490	0	60,390	
PS Painting and Sealants Contractor	16,908	1,691	0	1,860	0	20,459	
RF Resilient Flooring Contractor	7,818	782	0	860	0	9,460	
SM Sheetmetal Contractor	48	5	0	5	0	58	
SS Structural Steel Contractor	132,084	13,208	0	14,529	0	159,822	
SW Sitework Contractor	216,933	21,693	0	23,863	0	262,489	
TI Tile Contractor	12,528	1,253	0	1,378	0	15,159	
Subtotal Subcontract Work	1,386,793	156,053	0	154,285	0	1,697,131	
Indirect on Subcontracts	1,697,131	152,344	64,732	140,216	24,653	2,079,075	
Indirect on Own Work	257,458	23,111	9,820	21,271	3,740	315,400	
AA Prime Contractor	1,954,589	175,455	74,552	161,487	28,393	2,394,475	
AB Additive Prime							
S1 Additive Site Work Contractor	54,641	5,464	0	6,011	0	66,116	
Subtotal Subcontract Work	54,641	5,464	0	6,011	0	66,116	
Indirect on Subcontracts	66,116	0	2,314	5,009	881	74,320	
AB Additive Prime	66,116	0	2,314	5,009	881	74,320	
A1 Work Not in Contract	250,000	0	0	0	0	250,000	250000.00

0.01. Prime Contractor		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
0.01. Prime Contractor												
0.01. 0. Overhead Items - AA												
CIV	<01500 1101 > Field Office Trailer					0.00	0.00	0.00	298.39	0.00	298.39	
		12.00	MOS	N/A	0.00	0	0	0	3,581	0	3,581	298.39
USR	<01500 1102 > Fencing @ Storage Area					0.00	0.50	0.00	3.18	0.00	3.68	
		700.00	LF	N/A	0.00	0	350	0	2,226	0	2,576	3.68
USR	<01500 1103 > Office Supplies					0.00	0.00	0.00	132.50	0.00	132.50	
		12.00	MON	N/A	0.00	0	0	0	1,590	0	1,590	132.50
USR	<01700 0001 > Contract Closeout					0.00	1200.00	100.00	212.00	0.00	1512.00	
		1.00	MON	N/A	0.00	0	1,200	100	212	0	1,512	1512.00
MIL	<01710 1111 > Debris Removal & Disposal					0.22	2.19	0.03	1.86	0.00	4.08	
		85.00	CSF	ULABB	11.25	19	186	3	158	0	347	4.08
USR	<01710 1112 > Continuous Cleanup					0.00	300.00	50.00	0.00	0.00	350.00	
		12.00	MON	N/A	0.00	0	3,600	600	0	0	4,200	350.00
USR	<01710 2112 > Final Job Clean-Up					0.00	1200.00	100.00	212.00	0.00	1512.00	
		1.00	LS	N/A	0.00	0	1,200	100	212	0	1,512	1512.00
M MIL	<01910 3105 > Timekeeper					0.00	1200.00	0.00	0.00	0.00	1200.00	
		12.00	MON	N/A	0.00	0	14,400	0	0	0	14,400	1200.00
M MIL	<01910 4207 > Chief Planning Engineer					0.00	4000.00	0.00	0.00	0.00	4000.00	
		9.00	MON	N/A	0.00	0	36,000	0	0	0	36,000	4000.00
M MIL	<01910 4209 > Project Engineer					0.00	4200.00	0.00	0.00	0.00	4200.00	
		12.00	MON	N/A	0.00	0	50,400	0	0	0	50,400	4200.00
M MIL	<01910 5101 > Chief Purchasing Agent					0.00	3900.00	0.00	0.00	0.00	3900.00	
		4.00	MON	N/A	0.00	0	15,600	0	0	0	15,600	3900.00
USR	<01913 1001 > Temporary Power					0.00	0.00	0.00	159.00	0.00	159.00	
		12.00	MON	N/A	0.00	0	0	0	1,908	0	1,908	159.00
USR	<01913 2001 > Temporary Water					0.00	0.00	0.00	21.20	0.00	21.20	
		12.00	MON	N/A	0.00	0	0	0	254	0	254	21.20
USR	<01913 3001 > Temporary Sanitary (2ea @ $40ea) Portable Toilets					0.00	0.00	0.00	84.80	0.00	84.80	
		12.00	MON	N/A	0.00	0	0	0	1,018	0	1,018	84.80
USR	<01913 4001 > Temporary Telephone					0.00	0.00	0.00	106.00	0.00	106.00	
		12.00	MON	N/A	0.00	0	0	0	1,272	0	1,272	106.00
USR	<01500 1102 > Project Sign(s) (@ $300 ea)					0.00	40.00	0.00	318.00	0.00	358.00	
		2.00	EA	N/A	0.00	0	80	0	636	0	716	358.00

0.01. Prime Contractor		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
USR	<01660 1001 > Testing Adjusting & Balancing	1.00	LS	N/A	0.00	0.00 0	2000.00 2,000	0.00 0	530.00 530	0.00 0	2530.00 2,530	2530.00
USR	<01921 5200 > Travel Expense (1 Trip Per MON)	11.00	EA	N/A	0.00	0.00 0	0.00 0	0.00 0	318.00 3,498	0.00 0	318.00 3,498	318.00
USR	<01922 3001 > Insurance	1.00	LS	N/A	0.00	0.00 0	0.00 0	0.00 0	2332.00 2,332	0.00 0	2332.00 2,332	2332.00
USR	<01932 1001 > Mob and De- Mob	1.00	LS	N/A	0.00	0.00 0	3000.00 3,000	800.00 800	212.00 212	0.00 0	4012.00 4,012	4012.00
USR	<01941 3121 > Storage/Tool Trailer ($100/MON)	12.00	MON	N/A	0.00	0.00 0	0.00 0	0.00 0	106.00 1,272	0.00 0	106.00 1,272	106.00
M MIL	<01910 4301 > Surveyor	3.00	MON	N/A	0.00	0.00 0	3000.00 9,000	0.00 0	0.00 0	0.00 0	3000.00 9,000	3000.00
USR	<01040 1001 > Schedule Updates ($400/MON)	11.00	MON	N/A	0.00	0.00 0	375.00 4,125	0.00 0	26.50 292	0.00 0	401.50 4,417	401.50
MIL	< > TRK,HWY,4X2,F150,1/2T,4900 GVW 4X2 1/2-TON PICK-UP, 4900 GVW	2000.00	HR	T50F0001	1.00	0.00 0	0.00 0	5.75 11,509	0.00 0	0.00 0	5.75 11,509	5.75
	TOTAL Overhead Items - AA					19	141,141	13,112	21,202	0	175,455	

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST

AA.01. Chapel Familly Life Center

This is a 17,175 SF Chapel Family Life Center designed to be constructed at Naval Fac, Kings Bay, GA. The Architectural and Structural construction consists of the following: There are continuous foundation footings at all exterior walls and interior load bearing walls. There is a thicken slab footing for interior non-load bearing CMU walls. The structural steel columns re supported by spread footing. An 8" grout filled CMU foundation wall is constructed from top of the footing to top of the slab. The slab on grade is 4" thick. The exterior walls consist of 8" CMU and brick veneer with a precast concrete center band and precast concrete parapet coping. Exterior wall heights vary from 17' to 20'. Exterior windows are 3'-0" by 5'0" double hung insulated aluminum. Exterior doors consists of five pairs of tempered glass/aluminum entrance doors, one pair of full louvered hollow metal doors, and one pair of solid metal doors. The loading dock a the rear of the building is 16'0" by 6'0". There is also an 15'0" by 20'0" concrete slab with a 9'0" high brick fece enclosure for a fuel tank attached directly to the building (this is considered outside the 5' line and part of the primary facility). Toofing consists of single ply membrane roofing on flat areas and fiberglass shingles on the pitched areas with insulation. The roof framing consist of structural steel columns, beams and bar joist with metal decking. The interior of the building consists of a 58'0" by 58'0" Activity Center surrounded by corridors, classrooms and offices. The Activity Center has a 20'0" by 56'0" stage area with projection screen, audio system, stage curtains and electric handicap chair lift. It has an approximately 28'0" high cathedral ceiling consisting of acoustical tile and gypsum board. The entire building has an acoustical ceiling except the mechanical room, storage room, and bath rooms. There is a 20'0" by 24'0" Kitchen but kitchen equipment was Government Furnished and contractor installed. The receptionist/lounge/vending area is 20'0" by 10'0". All interior load bearing walls are 8" CMU with all other walls steet studs and gypsum board. There is a 16'0" by 20'0" skylight in the center entrance corridor. There is an 18'0" by 30'0" covered canopy at the front entrance. There are two lange bathrooms and five small bathrooms throughout the building. Each classroom has base and wall cabinets with sinks. All interior walls are painted. Approximately 1/3 fo the building has carpet with the remaining having vinyl composition tile. Teh Electrical System's powere is supplied by 225KVA pad mounted transformer. Secondary voltage is 120/208V which is used throughout the building for both lighting and power. Lights in the Aactivity Center and some of the classrooms have fluorescent dimming specified to 1% dimming. Classrooms without dimming ballast control light levels through switching and a ballast contained in one fixture may be wired to operate a lamp in anothe fixture. This special wiring is required during installation. All other lighting is standard fluorescent systems. Special Electrical Systems include Fire Alarm, Telephone Distribution, PA systems, a 2 station Intercomm, Television Distribution, and Intrusion Detection System.
Siesmic Zone 1, Frost depth 16", Baring Capacity 3000PSI, Cat Code 730-20

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
AA.01.01. Substructure											
AA.01.01.01. Standard Foundations											
AA.01.01.01.01. Wall Foundations											
AA.01.01.01.01.01. 2'-0" Wide Continuous Footing											
MIL AA <02221 1705 > Trench, 2-1/2 CY Hyd Excavator 113 CY/Hr (86M3)/Hr	216.04	CY	CODEU	112.88	0.03 6	0.30 65	1.00 217	0.00 0	0.00 0	1.30 282	1.30
MIL AA <02222 3402 > Trim Slopes/Sides of Excavation Hand Labor	982.00	SF	ULABE	75.00	0.02 16	0.16 161	0.02 19	0.00 0	0.00 0	0.18 180	0.18
MIL AA <03110 1112 > Cont Wall Footing Forms, 2 Uses Plywd Forms, Form & Strip w/Acc	982.00	SF	ACARJ	55.00	0.07 71	0.96 942	0.04 43	0.72 708	0.00 0	1.72 1,692	1.72
MIL AA <03210 1003 > Gr 60 Resteel,Ftgs & Slabs,#3-#6	1767.60	LB	SIWRC	626.00	0.01 11	0.10 170	0.00 3	0.27 476	0.00 0	0.37 649	0.37
M MIL AA <03311 1123 > Pour Cont Ftgs,Shlw,Direct Chute Place 3000 PSI Conc Foundations	37.32	CY	ALABE	15.00	0.40 15	4.05 151	0.35 13	60.83 2,156	0.00 0	65.22 2,434	65.22
<*Mod* 3005 > For 4000 Psi, Add To Material								114			
MIL AA <03311 4102 > Concrete Floor Finishes, Darby	982.00	SF	ACMAA	93.75	0.01 13	0.15 150	0.00 2	0.00 0	0.00 0	0.15 152	0.15
MIL AA <03305 1004 > Conc Curing, Sprayed Membrane Curing Compound	982.00	SF	ULABB	1187.50	0.00 2	0.02 20	0.00 0	0.04 43	0.00 0	0.07 64	0.07
MIL AA <02221 5001 > Backfill Trenches by Hand Without Compaction	142.39	CY	ULABA	1.63	0.77 110	7.59 1,080	0.12 17	0.00 0	0.00 0	7.70 1,097	7.70
MIL AA <02221 7001 > Compaction, 6" Layers w/Air Tamp By Hand, (15cm) Layers	142.39	CY	CLACA	50.00	0.10 14	0.99 140	0.09 12	0.00 0	0.00 0	1.07 153	1.07
TOTAL 2'-0" Wide Continuous Footing	491.00	LF			259	2,880	325	3,497	0	6,702	13.65
AA.01.01.01.01.02. 2'-6" Wide Continuous Footing											
MIL AA <02221 1705 > Trench, 2-1/2 CY Hyd Excavator 113 CY/Hr (86M3)/Hr	348.87	CY	CODEU	112.88	0.03 9	0.30 105	1.00 350	0.00 0	0.00 0	1.30 455	1.30
MIL AA <02222 3402 > Trim Slopes/Sides of Excavation Hand Labor	1427.50	SF	ULABE	75.00	0.02 24	0.16 235	0.02 27	0.00 0	0.00 0	0.18 262	0.18
MIL AA <03110 1112 > Cont Wall Footing Forms, 2 Uses Plywd Forms, Form & Strip w/Acc	1142.00	SF	ACARJ	55.00	0.07 83	0.96 1,095	0.04 50	0.72 823	0.00 0	1.72 1,968	1.72

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
AA.01.03.01.01.03. Precast Concrete Perimeter Band											
USR MA <03414 5500 > Precast Concrete Perimeter Band installed in exterior brick	536.00	LF		0.00	0.00 0	1.53 992	0.00 0	9.49 6,153	0.00 0	11.02 7,145	13.33
TOTAL Precast Concrete Perimeter Band	536.00	LF			0	992	0	6,153	0	7,145	13.33
TOTAL Exterior Skin	10293	SF			3,994	76,116	1,107	51,955	0	129,178	12.55
AA.01.03.01.02. Insulation and Vapor Barrier											
AA.01.03.01.02.01. 1" Rigid Insulation											
MIL MR <07212 1005 > 1" Polystyrene, R5.4 Rigid Insul	10298	SF	ACARA	100.00	0.01 129	0.18 2,222	0.00 56	0.41 5,151	0.00 0	0.60 7,429	0.72
TOTAL 1" Rigid Insulation	10298	SF			129	2,222	56	5,151	0	7,429	0.72
AA.01.03.01.02.02. 6" Batt Insulation											
MIL MR <07210 1004 > 6" Kraft Faced R19 Fbgs Insul	140.00	SF	ACARA	150.00	0.01 1	0.12 20	0.00 1	0.34 58	0.00 0	0.46 79	0.56
TOTAL 6" Batt Insulation	140.00	SF			1	20	1	58	0	79	0.56
TOTAL Insulation and Vapor Barrier	10298	SF			130	2,242	57	5,209	0	7,508	0.73
AA.01.03.01.04. Parapets											
AA.01.03.01.04.01. Precast Conc. Coping/14" wall											
USR MA <03414 5500 > Precast Conc. Coping for 8" CMU and brick veneer wall - 14"	735.00	LF		0.00	0.00 0	1.90 1,690	0.00 0	21.20 18,854	0.00 0	23.10 20,544	27.95
TOTAL Precast Conc. Coping/14" wall	735.00	LF			0	1,690	0	18,854	0	20,544	27.95
TOTAL Parapets	735.00	LF			0	1,690	0	18,854	0	20,544	27.95
AA.01.03.01.05. Exterior Louvers and Screens											
AA.01.03.01.05.01. Exterior Fixed Louvers											
M MIL SS <05730 1101 > Fixed Ornamental Louver,4-10 SF (> 3.0 M2) Incl Frame,Painted	35.00	SF	MSHMA	4.75	0.26 9	3.35 142	0.10 4	15.90 673	0.00 0	19.35 820	23.42
TOTAL Exterior Fixed Louvers	35.00	SF			9	142	4	673	0	820	23.42

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
TOTAL Windows	333.00	SF			330	4,282	51	15,393	0	19,725	59.23
TOTAL Exterior Windows	333.00	SF			330	4,282	51	15,393	0	19,725	59.23
AA.01.03.03. Exterior Personnel Doors											
AA.01.03.03.01. Glazed Doors											
AA.01.03.03.01.01. Pair 3'x7' Glass Entrance Doors											
M MIL AA <08912 3203 > Pr 3'x7'Al Framed Glass Doors Medium Stile, includes hardware	5.00	EA	SIWSB	0.24	10.53 53	205.53 1,028	4.21 21	3604.00 18,020	0.00 0	3813.74 19,069	3813.74
MIL AA <08420 2002 > Glass Entr Door,Hvywt Alum Frame 1/8"x17"Shaped Jamb-Head	100.00	LF	SIWSB	12.30	0.20 20	3.97 397	0.08 8	12.27 1,227	0.00 0	16.32 1,632	16.32
TOTAL Pair 3'x7' Glass Entrance Doors	5.00	EA			73	1,425	29	19,247	0	20,700	4140.08
TOTAL Glazed Doors	5.00	EA			73	1,425	29	19,247	0	20,700	4140.08
AA.01.03.03.02. Solid Doors											
AA.01.03.03.02.01. Dbl. 3'0"x 7' HM Door In Masonry											
MIL MR <07920 1001 > Oil Base Caulk&Seal,1/4"x1/4" Jt	0.20	CLF	ARFCA	0.27	4.65 1	61.16 15	1.08 0	4.63 1	0.00 0	66.86 16	80.90
MIL MA <04170 3012 > 16 Ga x 5-1/2" Dovetail Anchor	6.00	EA	AMABA	112.50	0.01 0	0.20 1	0.00 0	0.16 1	0.00 0	0.36 3	0.44
B MIL PS <09910 1101 > Paint Ext Door & Frame(HM or Wd)	2.00	EA	APTRA	0.84	1.49 3	15.57 38	0.47 1	5.30 13	0.00 0	21.33 52	25.81
M MIL AA <08110 3106 > Pair 3'x 7'x1-3/4"x20Ga Mtl Door (Unrated)	1.00	EA	ACARB	0.63	4.00 4	57.05 57	1.53 2	371.00 371	0.00 0	429.58 430	429.58
MIL MA <04110 1402 > Grout Door Frames - 6' x 7' Opng Grout Fill (3.50 CF/SF)	1.00	OPN	AMABD	2.25	1.00 1	15.22 18	0.21 0	3.36 4	0.00 0	18.79 23	22.74
MIL AA <08110 1006 > 6'x7'x6-3/4"DP Steel Door Frame 16 Ga Frame for 1-3/4"Door	1.00	EA	ACARB	0.63	4.00 4	57.05 57	1.53 2	81.90 82	0.00 0	140.49 140	140.49
TOTAL Dbl. 3'0"x 7' HM Door In Masonry	1.00	EA			13	186	5	472	0	663	663.25

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
AA.01.03.03.02.02. Pr 3'0'x 7' HM Louver In Masonry											
MIL MR <07920 1001 > Oil Base Caulk&Seal,1/4"x1/4" Jt					4.65	61.16	1.08	4.63	0.00	66.86	
	0.20	CLF	ARFCA	0.27	1	15	0	1	0	16	80.90
MIL MA <04170 3012 > 16 Ga x 5-1/2" Dovetail Anchor					0.01	0.20	0.00	0.16	0.00	0.36	
	6.00	EA	AMABA	112.50	0	1	0	1	0	3	0.44
B MIL PS <09910 1101 > Paint Ext Door & Frame(HM or Wd)					1.49	15.57	0.47	5.30	0.00	21.33	
	2.00	EA	APTRA	0.84	3	38	1	13	0	52	25.81
MIL MA <04110 1402 > Grout Door Frames - 6' x 7' Opng					1.00	15.22	0.21	3.36	0.00	18.79	
Grout Fill (3.50 CF/SF)	1.00	OPN	AMABD	2.25	1	18	0	4	0	23	22.74
MIL AA <08110 1006 > 6'x7'x6-3/4"DP Steel Door Frame					4.00	57.05	1.53	81.90	0.00	140.49	
16 Ga Frame for 1-3/4"Door	1.00	EA	ACARB	0.63	4	57	2	82	0	140	140.49
MIL AA <08110 3401 > 3'x7'x18 Ga Metal Louver Door					2.22	31.69	0.85	300.58	0.00	333.12	
	2.00	EA	ACARB	1.13	4	63	2	601	0	666	333.12
TOTAL Pr 3'0'x 7' HM Louver In Masonry	1.00	EA			13	193	5	702	0	900	899.92
AA.01.03.03.02.03. Hardware Set No. 2											
MIL AA <08710 1021 > Std Duty Cylinderical Lockset					0.50	7.13	0.19	85.74	0.00	93.07	
Finish Hardware	2.00	EA	ACARB	5.00	1	14	0	171	0	186	93.07
MIL AA <08710 1036 > Door Holder,Bronze Overhead Type					0.63	8.91	0.24	60.24	0.00	69.39	
Finish Hardware	4.00	EA	ACARB	4.00	3	36	1	241	0	278	69.39
MIL AA <08710 2018 > 4-1/2x4-1/2"Wrought Stl SD Butts					0.57	8.15	0.22	14.85	0.00	23.22	
Full Mortise, Plain Bearing	6.00	PR	ACARB	4.38	3	49	1	89	0	139	23.22
MIL AA <08710 2069 > Brass Dust Proof Strike w/Plate					0.40	5.71	0.15	8.48	0.00	14.34	
Type L14011	2.00	EA	ACARB	6.25	1	11	0	17	0	29	14.34
MIL AA <08710 2071 > Brass Flush Bolt,Lever Extension					0.25	3.57	0.10	16.02	0.00	19.68	
UL Rated, Type L34082	4.00	EA	ACARB	10.00	1	14	0	64	0	79	19.68
MIL AA <08740 1002 > Plain Aluminum Threshold					0.33	4.75	0.12	1.56	0.00	6.43	
	12.00	LF	ACARA	3.75	4	57	1	19	0	77	6.43
TOTAL Hardware Set No. 2	2.00	EA			13	182	5	601	0	788	393.82

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
M MIL MA <04220 3033 > 8"x16"x8"(21cm)Regular CMU Ptn (Sand Aggregate)	6641.60	SF	AMABF	41.25	0.13 845	1.97 15,830	0.03 231	1.00 8,007	0.00 0	3.00 24,069	3.62
MIL MA <04160 1004 > Vert #5 & #6 Rebar Joint Reinf	3486.77	LB	AMABA	100.00	0.01 44	0.23 953	0.00 12	0.35 1,476	0.00 0	0.58 2,441	0.70
MIL MA <04110 1202 > Grout Conc Block Cores- 8"Block Conc Fill Block Solid(0.258CF/SF	1826.42	SF	AMABD	37.50	0.06 110	0.91 2,018	0.01 28	0.27 596	0.00 0	1.20 2,642	1.45
TOTAL 8" CMU Wall	8302.00	SF			1,495	28,013	415	20,696	0	49,124	5.92
AA.01.05.01.01.03. Type 8 Steel Stud Partition											
3-5/8" steel stud with one layer of 5/8" gypsum board on both sides.											
MIL LP <09110 1103 > 3-5/8" Metal Stud Channel, 16"OC (92mm)Cold Roll,w/Tracks/Runners	150.00	SF	ALATA	50.00	0.03 4	0.40 73	0.01 1	0.16 29	0.00 0	0.57 104	0.69
B MIL GW <09260 1003 > 5/8" Drywall,One Layer, One Face On Metal Studs, Includes	300.00	SF	ACARB	128.62	0.02 6	0.28 101	0.01 3	0.23 85	0.00 0	0.52 188	0.63
TOTAL Type 8 Steel Stud Partition	150.00	SF			10	174	4	114	0	292	1.94
AA.01.05.01.01.04. Type 9 Steel Stud Partition 3-5/8" Steel Studs with Sound Insulation Blanket and 5/8" Gyp. Board on both sides.											
B MIL MR <07210 1003 > Sound Insulation	27880	SF	ACARA	249.15	0.01 139	0.07 2,415	0.00 61	0.45 15,019	0.00 0	0.52 17,495	0.63
MIL LP <09110 1103 > 3-5/8" Metal Stud Channel, 16"OC (92mm)Cold Roll,w/Tracks/Runners	27880	SF	ALATA	50.00	0.03 697	0.40 13,585	0.01 246	0.16 5,421	0.00 0	0.57 19,252	0.69
L MIL GW <09260 1003 > 5/8" Drywall,One Layer, One Face On Metal Studs, Includes	55760	SF	ACARB	128.62	0.02 1,082	0.28 18,703	0.01 499	0.21 14,304	0.00 0	0.50 33,505	0.60
TOTAL Type 9 Steel Stud Partition	27880	SF			1,918	34,703	806	34,743	0	70,253	2.52
AA.01.05.01.01.05. 3" Stud w/Gyp. Bd. one side											
L MIL LP <09110 1103 > 3-5/8" Metal Stud Channel, 16"OC (92mm)Cold Roll,w/Tracks/Runners	832.00	SF	ALATA	26.15	0.05 40	0.77 775	0.01 14	0.16 162	0.00 0	0.94 951	1.14
L MIL GW <09260 1003 > 5/8" Drywall,One Layer, One Face On Metal Studs, Includes	832.00	SF	ACARB	69.82	0.04 30	0.51 514	0.01 14	0.21 213	0.00 0	0.74 741	0.89

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
TOTAL 3" Stud w/Gyp. Bd. one side	832.00	SF			70	1,289	28	375	0	1,692	2.03
AA.01.05.01.01.06. 6" Stud w/Gyp. Bd. Two sides											
MIL LP <09110 1105 > 6" Metal Framing Stud - 25 Ga					0.03	0.45	0.01	0.21	0.00	0.67	
(15 cm) w/Tracks & Runners	100.00	SF	ALATA	45.00	3	54	1	26	0	81	0.81
L MIL GW <09260 1003 > 5/8" Drywall,One Layer, One Face					0.02	0.28	0.01	0.21	0.00	0.50	
On Metal Studs, Includes	200.00	SF	ACARB	128.62	4	67	2	51	0	120	0.60
TOTAL 6" Stud w/Gyp. Bd. Two sides	100.00	SF			7	121	3	77	0	201	2.01
TOTAL Fixed Partitions	37498	SF			3,678	67,660	1,306	58,424	0	127,390	3.40
AA.01.05.01.02. Retractable Partitions											
AA.01.05.01.02.01. Retractable Partitions											
USR AA <10618 00001> 3" Acoustical Folding Partition					0.19	2.66	0.08	21.20	0.00	23.95	
	304.00	SF	ACARP	7.88	58	810	25	6,445	0	7,280	23.95
USR AA <10618 00002> Overhead Track for Folding Part.					0.19	2.66	0.08	47.70	0.00	50.45	
	39.52	LF	ACARP	7.88	8	105	3	1,885	0	1,994	50.45
TOTAL Retractable Partitions	304.00	SF			65	915	28	8,330	0	9,273	30.50
TOTAL Retractable Partitions	304.00	SF			65	915	28	8,330	0	9,273	30.50
AA.01.05.01.05. Interior Windows											
AA.01.05.01.05.01. Fixed Interior Windows											
MIL AA <08520 1006 > Aluminum Picture Windows					0.10	1.26	0.01	6.93	0.00	8.21	
Standard Brush Finish	103.00	SF	AGLAB	25.00	10	130	1	714	0	846	8.21
MIL AA <08813 1201 > 1/4" Thk Clear Float Glass					0.15	1.87	0.02	5.30	0.00	7.19	
	103.00	SF	AGLAB	16.88	15	193	2	546	0	741	7.19
TOTAL Fixed Interior Windows	103.00	EA			26	323	4	1,260	0	1,586	15.40
AA.01.05.01.05.02. One Way Mirrow											
M MIL AA <08830 1101 > 1/8"Sheet Mirror Glass,Thru 10SF					0.13	1.58	0.02	37.10	0.00	38.70	
w/o Frames	16.00	SF	AGLAB	20.00	2	25	0	594	0	619	38.70

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
AA.01.06.03.07.02. Acoustical Tile Suspension Sys											
MIL AT <09540 1002 > T Bar Ceil Susp System 2'x 2'					0.01	0.18	0.00	0.63	0.00	0.81	
	15358	SF	ACARA	100.00	192	3,313	84	11,640	0	15,037	0.98
TOTAL Acoustical Tile Suspension Sys	15358	SF			192	3,313	84	11,640	0	15,037	0.98
TOTAL Suspension Systems	15358	SF			247	4,270	108	16,010	0	20,388	1.33
TOTAL Ceiling and Ceiling Finishes	18241	SF			572	9,570	246	28,532	0	38,348	2.10
TOTAL Interior Finishes	63874	SF			2,068	27,834	670	67,631	0	96,135	1.51
AA.01.08. Plumbing											
AA.01.08.01. Plumbing Fixtures											
AA.01.08.01.01. Waterclosets											
AA.01.08.01.01.01. Watercloset, Floor Mtd											
M MIL PL <15430 2001 > Rough-In Water Closet, Floor Mtd Not Including Fixture					10.00	119.50	3.89	89.55	0.00	212.93	
	9.00	EA	MPLUE	0.25	90	1,301	42	975	0	2,319	257.65
M MIL PL <15450 1111 > Flush Vlv H20 Closet, Floor Mtd Elongated,Vit China W/Siphon Jet					4.17	49.79	1.62	203.64	0.00	255.05	
	9.00	EA	MPLUE	0.60	38	542	18	2,218	0	2,777	308.61
TOTAL Watercloset, Floor Mtd	9.00	EA			128	1,844	60	3,193	0	5,096	566.26
TOTAL Waterclosets	9.00	EA			128	1,844	60	3,193	0	5,096	566.26
AA.01.08.01.02. Urinals											
AA.01.08.01.02.01. Urinal, Wall Hung											
M MIL PL <15430 2003 > Rough-In Urinal, Wall Mounted Not Including Fixture					5.00	59.75	1.94	159.83	0.00	221.52	
	2.00	EA	MPLUE	0.50	10	145	5	387	0	536	268.04
M MIL PL <15450 1311 > Washdown, Wall Hung Urinal w/Flush Valve,Vitreous China					4.26	50.85	1.65	228.35	0.00	280.85	
	2.00	EA	MPLUE	0.59	9	123	4	553	0	680	339.83
TOTAL Urinal, Wall Hung	2.00	EA			19	268	9	939	0	1,216	607.87
TOTAL Urinals	2.00	EA			19	268	9	939	0	1,216	607.87

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
AA.01.08.02. Domestic Water Supply											
AA.01.08.02.01. Pipes and Fittings											
AA.01.08.02.01.01. 1/2" Copper Pipe, W/Fittings											
MIL PL <15063 1002 > 1/2"(12mm) Cu Pipe/Tubing Type L					0.04	0.57	0.02	0.53	0.00	1.12	
	240.00	LF	MPLUA	29.25	10	166	5	155	0	326	1.36
MIL PL <15063 1042 > 1/2" 90 Degree Elbow, Copper					0.16	2.15	0.06	0.13	0.00	2.34	
	24.00	EA	MPLUA	7.75	4	62	2	4	0	68	2.83
MIL PL <15063 1082 > 1/2" Straight Copper Coupling					0.16	2.15	0.06	0.10	0.00	2.31	
	24.00	EA	MPLUA	7.75	4	62	2	3	0	67	2.80
MIL PL <15094 3001 > 1/2" Hanger for Insulated Pipe					1.33	16.40	1.54	2.14	0.00	20.08	
Incl Hanger,Rod,Saddle&Clamp	24.00	EA	MPLUH	1.88	32	476	45	62	0	583	24.30
TOTAL 1/2" Copper Pipe, W/Fittings	240.00	LF			50	767	53	224	0	1,044	4.35
AA.01.08.02.01.02. 3/4" Copper Pipe, W/Fittings											
MIL PL <15063 1003 > 3/4"(20mm) Cu Pipe/Tubing Type L					0.05	0.71	0.02	0.83	0.00	1.57	
	590.00	LF	MPLUA	23.38	32	509	15	596	0	1,120	1.90
MIL PL <15063 1043 > 3/4" 90 Degree Elbow, Copper					0.21	2.84	0.08	0.29	0.00	3.21	
	59.00	EA	MPLUA	5.88	13	203	6	21	0	229	3.89
MIL PL <15063 1083 > 3/4" Straight Copper Coupling					0.21	2.84	0.08	0.19	0.00	3.12	
	59.00	EA	MPLUA	5.88	13	203	6	14	0	222	3.77
M MIL PL <15094 3002 > 3/4" Hanger for Insulated Pipe					1.33	16.40	1.54	4.24	0.00	22.18	
Incl Hanger,Rod,Saddle&Clamp	59.00	EA	MPLUH	1.88	79	1,171	110	303	0	1,584	26.84
TOTAL 3/4" Copper Pipe, W/Fittings	590.00	LF			135	2,086	137	933	0	3,156	5.35
AA.01.08.02.01.03. 1" Copper Pipe, W/Fittings											
MIL PL <15063 1004 > 1"(25mm) Cu Pipe/Tubing Type L					0.06	0.86	0.03	1.16	0.00	2.04	
	140.00	LF	MPLUA	19.50	9	145	4	196	0	345	2.46
MIL PL <15063 1034 > 1" Copper Tee-Reducing Sweat					0.43	5.80	0.17	1.67	0.00	7.64	
	14.00	EA	MPLUA	2.88	6	98	3	28	0	129	9.25
MIL PL <15063 1084 > 1" Straight Copper Coupling					0.27	3.61	0.11	0.41	0.00	4.12	
	14.00	EA	MPLUA	4.63	4	61	2	7	0	70	4.99
M MIL PL <15094 3002 > 1" Hanger for Insulated Pipe					1.33	16.40	1.54	4.24	0.00	22.18	
Incl Hanger,Rod,Saddle&Clamp	14.00	EA	MPLUH	1.88	19	278	26	72	0	376	26.84

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
AA.01.10.03. Standpipe Systems											
AA.01.10.03.01. Standpipe Equipment											
AA.01.10.03.01.01. Fire Department Connection											
MIL FP <15092 1204 > 6.07" ID Steel Pipe Sleeve					1.67	22.31	1.98	32.86	0.00	57.15	
w/12" Link Seals	1.00	EA	MSPFE	1.50	2	28	2	42	0	72	72.29
MIL FP <15530 1401 > 4"x2-1/2"x2-1/2" Siamese Conn					4.87	65.24	2.04	344.24	0.00	411.51	
	1.00	EA	MSPIC	0.51	5	83	3	435	0	521	520.57
TOTAL Fire Department Connection	1.00	EA			7	111	5	477	0	593	592.86
AA.01.10.03.01.02. Water Motor Alarm											
MIL FP <15092 1203 > 4.03" ID Steel Pipe Sleeve					1.33	17.85	1.58	24.51	0.00	43.95	
w/12" Link Seals	1.00	EA	MSPFE	1.88	1	23	2	31	0	56	55.59
USR FP <15530 1405 > Water Motor Alarm Gong					5.00	66.94	2.09	90.10	0.00	159.13	
	1.00	EA	MSPIC	0.50	5	85	3	114	0	201	201.30
TOTAL Water Motor Alarm	1.00	EA			6	107	5	145	0	257	256.89
TOTAL Standpipe Equipment					13	218	10	622	0	850	
TOTAL Standpipe Systems	1.00	EA			13	218	10	622	0	850	849.75
TOTAL Fire Protection	17175	SF			766	12,289	1,573	12,724	3,163	29,748	1.73
AA.01.11. Electric Power And Lighting											
AA.01.11.01. Service and Distribution											
AA.01.11.01.05. Panels and Service to Panels											
AA.01.11.01.05.01. Service to Panels											
MIL EL <16111 1206 > 2" 2 Hole Stl Conduit Strap					0.00	0.00	0.00	0.40	0.00	0.40	
Mat'l Only,See CSI ?16110/2000	28.00	EA	N/A	0.00	0	0	0	14	0	14	0.51
USR EL <16111 1207 > 2-1/2" 2 Hole Stl Conduit Strap					0.00	0.00	0.00	0.63	0.00	0.63	
	6.00	EA	N/A	0.00	0	0	0	5	0	5	0.79
MIL EL <16111 1151 > RGS 2"Conduit w/Coupling					0.14	2.07	0.02	3.05	0.00	5.14	
Mtd Exposed on Flat Wall,10' Hgt	284.00	LF	EELEF	34.35	39	742	7	1,096	0	1,845	6.50
MIL EL <16111 1152 > RGS 2" Elbow					0.86	13.14	0.12	20.86	0.00	34.12	
Mtd Exposed on Flat Wall,10' Hgt	14.00	EA	EELEF	5.40	12	233	2	369	0	604	43.16

AA.01. Chapel Familly Life Center

		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
MIL EL <16111 1153 >	RGS 2"Bushing Set w/Locknuts					0.68	10.29	0.09	2.62	0.00	13.00	
	Mtd Exposed on Flat Wall,10' Hgt	18.00	EA	EELEF	6.90	12	234	2	60	0	296	16.45
MIL EL <16111 4101 >	2-1/2"RGS Conduit w/Coupling					0.16	2.37	0.02	5.11	0.00	7.50	
	Service & Feeder Conduit,10' Hgt	120.00	LF	EELEF	30.00	19	359	3	776	0	1,139	9.49
MIL EL <16111 4102 >	2-1/2"RGS Elbow					1.48	22.53	0.21	34.40	0.00	57.14	
	Service & Feeder Conduit,10' Hgt	3.00	EA	EELEF	3.15	4	86	1	131	0	217	72.28
MIL EL <16111 4103 >	2-1/2"RGS Bushing Set w/Locknuts					0.78	11.83	0.11	8.16	0.00	20.10	
	Service & Feeder Conduit,10' Hgt	4.00	EA	EELEF	6.00	3	60	1	41	0	102	25.43
MIL EL <16111 1223 >	3" One Hole Iron Conduit Strap					0.00	0.00	0.00	5.93	0.00	5.93	
	Mat'l Only,See CSI?16110/2000	7.00	EA	N/A	0.00	0	0	0	52	0	52	7.50
MIL EL <16111 4111 >	3"RGS Conduit w/Coupling					0.19	2.96	0.03	6.34	0.00	9.32	
	Service & Feeder Conduit,10' Hgt	130.00	LF	EELEF	24.00	25	486	4	1,042	0	1,533	11.79
MIL EL <16111 4112 >	3"RGS Elbow					2.07	31.55	0.29	236.97	0.00	268.81	
	Service & Feeder Conduit,10' Hgt	4.00	EA	EELEF	2.25	8	160	1	1,199	0	1,360	340.05
MIL EL <16111 4113 >	3"RGS Bushing Set w/Locknuts					0.86	13.14	0.12	9.92	0.00	23.18	
	Service & Feeder Conduit,10' Hgt	8.00	EA	EELEF	5.40	7	133	1	100	0	235	29.33
MIL EL <16120 1501 >	#8 AWG Cable-Type THW					9.71	147.88	1.36	239.16	0.00	388.40	
	600V Cu,Sgl Strd,Pl in Cnd,12'Hg	0.12	MLF	EELEF	0.48	1	22	0	36	0	59	491.32
MIL EL <16120 1502 >	#6 AWG Cable-Type THW					11.62	177.01	1.63	335.61	0.00	514.25	
	600V Cu,Sgl Strd,Pl in Cnd,12'Hg	0.33	MLF	EELEF	0.40	4	73	1	138	0	211	650.52
MIL EL <16120 1503 >	#4 AWG Cable-Type THW					13.55	206.34	1.90	522.68	0.00	730.92	
	600V Cu,Sgl Strd,Pl in Cnd,12'Hg	0.14	MLF	EELEF	0.34	2	35	0	90	0	126	924.61
MIL EL <16120 1505 >	#1 AWG Cable-Type THW					19.42	295.75	2.72	1132.80	0.00	1431.27	
	600V Cu,Sgl Strd,Pl in Cnd,12'Hg	0.50	MLF	EELEF	0.24	10	187	2	716	0	905	1810.56
MIL EL <16120 1506 >	#1/0 AWG Cable-Type THW					21.88	333.24	3.06	1317.98	0.00	1654.28	
	600V Cu,Sgl Strd,Pl in Cnd,12'Hg	1.19	MLF	EELEF	0.21	26	502	5	1,984	0	2,490	2092.67
MIL EL <16120 1508 >	#3/0 AWG Cable-Type THW					27.25	415.09	3.82	2043.45	0.00	2462.36	
	600V Cu,Sgl Strd,Pl in Cnd,12'Hg	0.01	MLF	EELEF	0.17	0	5	0	26	0	31	3114.88
MIL EL <16120 1512 >	300 MCM-Type THW					36.12	550.24	5.06	3582.30	0.00	4137.60	
	600V Cu,Sgl Strd,Pl in Cnd,12'Hg	0.38	MLF	EELEF	0.13	14	264	2	1,722	0	1,989	5234.06
MIL EL <16120 1514 >	400 MCM-Type THW					43.15	657.23	6.04	4785.75	0.00	5449.02	
	600V Cu,Sgl Strd,Pl in Cnd,12'Hg	0.50	MLF	EELEF	0.11	22	416	4	3,027	0	3,447	6893.01
MIL EL <16451 1304 >	6AWG,Bare Solid Cu 1/c					5.43	67.21	0.00	155.69	0.00	222.90	
	Laid in Trench,w/o Trnhg & Bfill	0.02	MLF	EELEC	0.60	0	2	0	4	0	6	281.97

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MIL EL <16452 1003 > 3/4"Diax10'L Ground Rods,Cu-Clad	1.00	EA	EELEB	1.35	1.85 2	30.62 39	0.25 0	32.24 41	0.00 0	63.10 80	79.83
MIL EL <16453 1003 > 3/4",Ground Rod Clamp	1.00	EA	EELEB	4.80	0.52 1	8.61 11	0.07 0	5.09 6	0.00 0	13.77 17	17.42
MIL EL <16453 2003 > 2-1/2"To 3"Pipe Gnd Clamps, Brz	1.00	EA	EELEB	1.65	1.52 2	25.05 32	0.20 0	23.37 30	0.00 0	48.62 62	61.50
TOTAL Service to Panels	1725.00	AMP			211	4,081	37	12,707	0	16,825	9.75
AA.01.11.01.05.10. Panels											
MIL EL <16471 1212 > 225A-42 Ckt Cap,120/208V,4W,3Ph Panelboard,Main Lugs,Unassembled	5.00	EA	EELEB	0.74	3.39 17	56.00 354	0.45 3	241.51 1,528	0.00 0	297.97 1,885	376.93
MIL EL <16471 1225 > 600 Amp-42 Ckt, 120/208v,4w,3Ph MCB, Floor Mounted	1.00	EA	EELEB	0.23	10.68 11	176.63 223	1.43 2	2491.39 3,152	0.00 0	2669.44 3,377	3376.85
MIL EL <16471 1301 > 1 Pole,120 V,15-60A,Ckt Brkr 10,000Amp Interrupting Capacity	140.00	EA	EELEB	4.80	0.52 73	8.61 1,525	0.07 12	6.25 1,107	0.00 0	14.93 2,645	18.89
MIL EL <16471 1303 > 2 Pole,240 V,15-60A,Crk Brkr 10,000Amp Interrupting Capacity	3.00	EA	EELEB	3.02	0.83 2	13.71 52	0.11 0	13.76 52	0.00 0	27.58 105	34.89
MIL EL <16471 1306 > 3 Pole,240 V,15-60A,Crk Brkr 10,000Amp Interrupting Capacity	1.00	EA	EELEB	1.92	1.30 1	21.53 27	0.17 0	46.83 59	0.00 0	68.53 87	86.69
MIL EL <16471 1307 > 3 Pole,240 V,70-100A,Crk Brkr 10,000Amp Interrupting Capacity	4.00	EA	EELEB	0.96	2.60 10	43.05 218	0.35 2	64.71 327	0.00 0	108.11 547	136.76
MIL EL <16471 1308 > 3 Pole,240 V,125-150A,Crk Brkr 10,000Amp Interrupting Capacity	2.00	EA	EELEB	0.69	3.64 7	60.16 152	0.49 1	666.54 1,686	0.00 0	727.19 1,840	919.89
MIL EL <16470 7016 > 300-600A, Type LC,3 P Crk Brkr Panel Mtd,WRI,600V,Molded Case	3.00	EA	EELEB	0.73	3.43 10	56.70 215	0.46 2	1725.94 6,550	0.00 0	1783.09 6,767	2255.61
TOTAL Panels	1725.00	AMP			132	2,767	22	14,462	0	17,251	10.00
TOTAL Panels and Service to Panels	1725.00	AMP			344	6,848	60	27,168	0	34,076	19.75
TOTAL Service and Distribution	1725.00	AMP			344	6,848	60	27,168	0	34,076	19.75

AA.01. Chapel Familly Life Center

	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
MIL EL <16111 1312 > 3/4" EMT Set Screw Connectors Mtd Exposed on Flat Wall,10' Hgt	56.00	EA	EELEF	48.00	0.10 5	1.48 105	0.01 1	0.81 58	0.00 0	2.31 163	2.92
MIL EL <16120 8213 > 4/c#18 300V Tstat Cable,Low Volt Cable For HVAC System Controls	1.90	MLF	EELEF	1.31	3.55 7	54.06 130	0.50 1	656.77 1,579	0.00 0	711.32 1,710	899.82
MIL EL <16140 5201 > 4"Sq Box x 1-1/2" Dp,w/Cvr,Cncl Outlet Boxes	28.00	EA	EELEB	4.80	0.52 15	8.61 305	0.07 2	1.34 47	0.00 0	10.02 355	12.68
CIV EL <16720 3201 > Alarm Testing Level Annunciation Set Point Type	1.00	LS	EELEB	0.50	5.00 5	82.66 105	0.67 1	0.00 0	0.00 0	83.33 105	105.41
MIL EL <16721 1104 > 8 Zone Fire Control Panel	1.00	EA	EELEB	0.08	30.86 31	510.26 645	4.12 5	1358.42 1,718	0.00 0	1872.80 2,369	2369.09
MIL EL <16721 2401 > Fire Alarm Mnl Pull Sta,Standard	6.00	EA	EELEB	2.40	1.04 6	17.22 131	0.14 1	22.64 172	0.00 0	40.00 304	50.60
MIL EL <16721 3103 > 8 Zone Remote Annunciation Panel	1.00	EA	EELEB	0.39	6.41 6	105.98 134	0.86 1	243.06 307	0.00 0	349.89 443	442.61
M MIL EL <16721 4201 > Fire Alarm Horns, w/ Strobe	7.00	EA	EELEB	1.59	1.57 11	25.99 230	0.21 2	55.65 493	0.00 0	81.85 725	103.55
USR EL <16721 5001 > Antenna and Mounting System	1.00	EA	EELEB	0.25	10.00 10	165.33 209	1.33 2	591.52 748	0.00 0	758.18 959	959.10
USR EL <16721 5001 > BT2-4 Building Transceiver	1.00	EA	EELEB	0.25	10.00 10	165.33 209	1.33 2	2318.49 2,933	0.00 0	2485.14 3,144	3143.71
TOTAL Building Fire Detection System	1.00	EA			213	4,250	37	9,159	0	13,446	13445.91
TOTAL Fire Alarm Systems	17175	SF			213	4,250	37	9,159	0	13,446	0.78
AA.01.12.01.03. Telephone Systems											
AA.01.12.01.03.01. Telephone Systems Empty Conduit											
MIL EL <16111 1201 > 1/2" 2 Hole Stl Conduit Strap Mat'l Only,See CSI ??16110/2000	55.00	EA	N/A	0.00	0.00 0	0.00 0	0.00 0	0.08 6	0.00 0	0.08 6	0.11
MIL EL <16111 1301 > 1/2" EMT w/Coupling Mtd Exposed on Flat Wall,10' Hgt	185.00	LF	EELEF	106.65	0.04 8	0.67 156	0.01 1	0.28 65	0.00 0	0.95 223	1.20
MIL EL <16111 1302 > 1/2" EMT Set Screw Connectors Mtd Exposed on Flat Wall,10' Hgt	2.00	EA	EELEF	54.90	0.08 0	1.29 3	0.01 0	0.51 1	0.00 0	1.81 5	2.29
MIL EL <16111 1202 > 3/4" 2 Hole Stl Conduit Strap Mat'l Only,See CSI ?16110/2000	309.00	EA	N/A	0.00	0.00 0	0.00 0	0.00 0	0.11 41	0.00 0	0.11 41	0.13

AA.01. Chapel Familly Life Center

		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
MIL EL <16111 1311 >	3/4" EMT w/Coupling Mtd Exposed on Flat Wall,10' Hgt	1032.00	LF	EELEF	87.30	0.05 55	0.81 1,061	0.01 10	0.41 531	0.00 0	1.23 1,603	1.55
L MIL EL <16111 1311 >	3/4" EMT w/Coupling -WASTE - Mtd Exposed on Flat Wall,10' Hgt	50.00	LF	EELEF	10418	0.00 0	0.01 0	0.00 0	0.41 26	0.00 0	0.41 26	0.52
MIL EL <16111 1312 >	3/4" EMT Set Screw Connectors Mtd Exposed on Flat Wall,10' Hgt	60.00	EA	EELEF	48.00	0.10 6	1.48 112	0.01 1	0.81 62	0.00 0	2.31 175	2.92
MIL EL <16111 1203 >	1" 2 Hole Stl Conduit Strap Mat'l Only,See CSI ?16110/2000	186.00	EA	N/A	0.00	0.00 0	0.00 0	0.00 0	0.15 35	0.00 0	0.15 35	0.19
MIL EL <16111 1321 >	1" EMT w/Coupling Mtd Exposed on Flat Wall,10' Hgt	620.00	LF	EELEF	68.55	0.07 42	1.04 812	0.01 7	0.65 509	0.00 0	1.69 1,328	2.14
L MIL EL <16111 1321 >	1" EMT w/Coupling - WASTE - Mtd Exposed on Flat Wall,10' Hgt	30.00	LF	EELEF	10418	0.00 0	0.01 0	0.00 0	0.65 25	0.00 0	0.66 25	0.83
MIL EL <16111 1322 >	1"EMT 90 Deg Elbow Mtd Exposed on Flat Wall,10' Hgt	22.00	EA	EELEF	19.20	0.24 5	3.70 103	0.03 1	3.07 85	0.00 0	6.80 189	8.60
MIL EL <16111 1323 >	1" EMT Set Screw Connector Mtd Exposed on Flat Wall,10' Hgt	22.00	EA	EELEF	40.05	0.12 3	1.77 49	0.02 0	1.37 38	0.00 0	3.16 88	4.00
MIL EL <16111 1204 >	1-1/4" 2 Hole Stl Conduit Strap Mat'l Only,See CSI ?16110/2000	138.00	EA	N/A	0.00	0.00 0	0.00 0	0.00 0	0.24 43	0.00 0	0.24 43	0.31
MIL EL <16111 1331 >	1-1/4" EMT w/Coupling Mtd Exposed on Flat Wall,10' Hgt	460.00	LF	EELEF	56.40	0.08 38	1.26 732	0.01 7	1.02 592	0.00 0	2.29 1,331	2.89
L MIL EL <16111 1331 >	1-1/4" EMT w/Coupling - WASTE - Mtd Exposed on Flat Wall,10' Hgt	23.00	LF	EELEF	10418	0.00 0	0.01 0	0.00 0	1.02 30	0.00 0	1.02 30	1.30
MIL EL <16111 1332 >	1-1/4"EMT 90 Deg Elbow Mtd Exposed on Flat Wall,10' Hgt	8.00	EA	EELEF	16.05	0.29 2	4.42 45	0.04 0	4.20 42	0.00 0	8.66 88	10.96
MIL EL <16111 1333 >	1-1/4" EMT Set Screw Connector Mtd Exposed on Flat Wall,10' Hgt	8.00	EA	EELEF	31.95	0.15 1	2.22 22	0.02 0	2.96 30	0.00 0	5.21 53	6.59
MIL EL <16111 4131 >	4"RGS Conduit w/Couplings Service & Feeder Conduit,10' Hgt	340.00	LF	EELEF	16.05	0.29 99	4.42 1,902	0.04 18	9.21 3,961	0.00 0	13.67 5,880	17.29
MIL EL <16111 4132 >	4"RGS Elbow Service & Feeder Conduit,10' Hgt	16.00	EA	EELEF	1.35	3.45 55	52.58 1,064	0.48 10	361.10 7,309	0.00 0	414.16 8,383	523.92
MIL EL <16111 4133 >	4"RGS Bushing Set w/Locknuts Service & Feeder Conduit,10' Hgt	16.00	EA	EELEF	3.90	1.19 19	18.20 368	0.17 3	19.11 387	0.00 0	37.48 759	47.41
MIL EL <16120 1234 >	#6 AWG Cable-RHW 600V Cu,Sgl Strd,Pl in Cnd,12'Hg	0.20	MLF	EELEF	0.60	7.77 2	118.30 30	1.09 0	374.47 95	0.00 0	493.86 125	624.73

AA.01. Chapel Familly Life Center	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
MIL EL <16140 5202 > 4"Sq Box x 2-1/8" Dp,w/Cvr,Cncl					0.52	8.61	0.07	3.51	0.00	12.19	
Outlet Boxes	52.00	EA	EELEB	4.80	27	566	5	231	0	802	15.42
MIL EL <16140 6102 > 4" x 4" x 4"J-Boxes w/Cvrs,Exp					0.72	11.98	0.10	14.39	0.00	26.47	
	4.00	EA	EELEB	3.45	3	61	0	73	0	134	33.48
MIL EL <16740 1102 > 4'x8'x3/4"Pub Phone Plywd Backbd					1.04	17.22	0.14	23.74	0.00	41.10	
	1.00	EA	EELEB	2.40	1	22	0	30	0	52	52.00
MIL EL <16740 1331 > Telephone Outlet Blocks					0.10	1.72	0.00	10.60	0.00	12.32	
	37.00	EA	EELEA	12.00	4	81	0	496	0	577	15.59
TOTAL Telephone Systems Empty Conduit	37.00	EA			370	7,192	65	14,743	0	21,999	594.56
TOTAL Telephone Systems	37.00	OUT			370	7,192	65	14,743	0	21,999	594.56
AA.01.12.01.04. Public Address Systems											
AA.01.12.01.04.01. Public Address System "A"											
MIL EL <16111 1202 > 3/4" 2 Hole Stl Conduit Strap					0.00	0.00	0.00	0.11	0.00	0.11	
Mat'l Only,See CSI ?16110/2000	31.00	EA	N/A	0.00	0	0	0	4	0	4	0.13
MIL EL <16111 1311 > 3/4" EMT w/Coupling					0.05	0.81	0.01	0.41	0.00	1.23	
Mtd Exposed on Flat Wall,10' Hgt	105.00	LF	EELEF	87.30	6	108	1	54	0	163	1.55
L MIL EL <16111 1311 > 3/4" EMT w/Coupling - WASTE -					0.00	0.01	0.00	0.41	0.00	0.41	
Mtd Exposed on Flat Wall,10' Hgt	5.00	LF	EELEF	10418	0	0	0	3	0	3	0.52
MIL EL <16111 1312 > 3/4" EMT Set Screw Connectors					0.10	1.48	0.01	0.81	0.00	2.31	
Mtd Exposed on Flat Wall,10' Hgt	11.00	EA	EELEF	48.00	1	21	0	11	0	32	2.92
MIL EL <16120 8213 > 4/c#18 300V Tstat Cable,Low Volt					3.55	54.06	0.50	656.77	0.00	711.32	
Cable For HVAC System Controls	0.12	MLF	EELEF	1.31	0	8	0	100	0	108	899.82
MIL EL <16140 5201 > 4"Sq Box x 1-1/2" Dp,w/Cvr,Cncl					0.52	8.61	0.07	1.34	0.00	10.02	
Outlet Boxes	6.00	EA	EELEB	4.80	3	65	1	10	0	76	12.68
M MIL EL <16770 1002 > PA Eqpt, Amplifiers, 35 Watt					4.39	72.51	0.59	265.00	0.00	338.10	
	1.00	EA	EELEB	0.57	4	92	1	335	0	428	427.69
MIL EL <16770 2001 > PA Speakers, Recessed Mounted					3.62	59.90	0.48	93.96	0.00	154.35	
	3.00	EA	EELEB	0.69	11	227	2	357	0	586	195.25
MIL EL <16770 3001 > PA Eqpt, Microphone & Stand					1.57	25.99	0.21	630.61	0.00	656.81	
	1.00	EA	EELEB	1.59	2	33	0	798	0	831	830.87
TOTAL Public Address System "A"	1.00	EA			27	554	5	1,672	0	2,230	2230.28

BA.01. Electric Service	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
BA.01.20.02.04.01. Corner Pole 45/3 15KV Armless											
M MIL EL <16413 1005 > Wood Pole, Cl 3,Pine,Treated,45' (13.7M),Machine Dig & Set	3.00	EA	EELEJ	0.59	8.44 25	129.51 492	48.17 183	320.20 1,215	0.00 0	497.89 1,889	629.83
USR EL <16413 2511 > 2-1/2" SQ Washer (J1075)	30.00	EA		0.00	0.00 0	0.00 0	0.00 0	0.23 9	0.00 0	0.23 9	0.29
USR EL <16413 2512 > Guy Clip (J6295)	6.00	EA		0.00	0.00 0	0.00 0	0.00 0	9.00 68	0.00 0	9.00 68	11.38
USR EL <16413 2513 > 5/8" x 14" Straight Thimble	18.00	EA		0.00	0.00 0	0.00 0	0.00 0	2.98 68	0.00 0	2.98 68	3.77
USR EL <16413 2514 > 5/8" x 14" Angle Thimble (J8154)	6.00	EA		0.00	0.00 0	0.00 0	0.00 0	3.30 25	0.00 0	3.30 25	4.17
USR EL <16413 2516 > 5/8" x 16" Bolt and Nut	6.00	EA		0.00	0.00 0	0.00 0	0.00 0	1.52 12	0.00 0	1.52 12	1.92
MIL EL <16413 3102 > Down Guy 45' To 60' Pole	3.00	EA	EELEJ	0.91	5.52 17	84.70 321	31.50 120	57.74 219	0.00 0	173.94 660	220.03
MIL EL <16413 3301 > Guy Strain Insulator	3.00	EA	EELEJ	1.20	4.17 13	63.95 243	23.78 90	2.98 11	0.00 0	90.71 344	114.75
MIL EL <16413 4202 > 15KV Class 52-4,Suspension Insul w/Clevis & Strain Clamp	18.00	EA	EELEJ	3.20	1.56 28	24.02 547	8.93 203	27.83 634	0.00 0	60.78 1,384	76.88
MIL EL <16413 4302 > 15kv Class ??? ,Spool Insul w/ Clevis	6.00	EA	EELEJ	3.06	1.63 10	25.05 190	9.32 71	21.22 161	0.00 0	55.59 422	70.33
TOTAL Corner Pole 45/3 15KV Armless	3.00	EA			92	1,793	667	2,422	0	4,881	1627.05
BA.01.20.02.04.02. Riser 4" GRS Single Conduit											
MIL EL <02221 1802 > Trench, Chain Trencher, Med Soil 1' Wide x 4'Deep	0.67	CY	CODBB	34.38	0.04 0	0.44 0	0.33 0	0.00 0	0.00 0	0.77 1	0.98
MIL EL <02222 3401 > Trim Bottom of Excavation Hand Labor	2.00	SF	ULABE	75.00	0.02 0	0.16 0	0.02 0	0.00 0	0.00 0	0.18 0	0.23
MIL EL <02222 4202 > Compact Backfill w/Vib Plate Around Structures and Trenches	0.30	CY	CLACC	14.75	0.20 0	2.02 1	0.16 0	0.00 0	0.00 0	2.18 1	2.75
MIL EL <02221 5002 > Backfill Trench w/60 HP Tr Dozer Without Compaction	0.30	CY	CODTA	53.25	0.03 0	0.34 0	0.30 0	0.00 0	0.00 0	0.63 0	0.80
M MIL EL <03311 1171 > Pour Duct Bank by Direct Chute Type V Concrete	0.44	CY	ALABE	18.75	0.32 0	3.24 2	0.28 0	57.77 32	0.00 0	61.28 34	77.52

BA.01. Electric Service

	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
MIL EL <16111 3023 > 4"PVC Sch 40 Adaptor					0.41	5.10	0.00	6.02	0.00	11.12	
Direct Burial, Conc Encased-Only	2.00	EA	EELEC	7.88	1	13	0	15	0	28	14.07
MIL EL <16111 4131 > 4"RGS Conduit w/Couplings					0.29	4.42	0.04	9.21	0.00	13.67	
Service & Feeder Conduit,10' Hgt	60.00	LF	EELEF	16.05	17	336	3	699	0	1,038	17.29
MIL EL <16111 4132 > 4"RGS Elbow					3.45	52.58	0.48	361.10	0.00	414.16	
Service & Feeder Conduit,10' Hgt	2.00	EA	EELEF	1.35	7	133	1	914	0	1,048	523.92
MIL EL <16111 4133 > 4"RGS Bushing Set w/Locknuts					1.19	18.20	0.17	19.11	0.00	37.48	
Service & Feeder Conduit,10' Hgt	2.00	EA	EELEF	3.90	2	46	0	48	0	95	47.41
MIL EL <16121 3301 > #2-#4/0 3/c 15KV PotHead(not					16.67	275.54	2.22	249.09	0.00	526.85	
incl),on Racks	6.00	EA	EELEB	0.15	100	2,091	17	1,891	0	3,999	666.47
MIL EL <16121 3601 > #2-3/0 Cable Termination,15KV					3.40	56.23	0.45	67.61	0.00	124.30	
15 KV	6.00	EA	EELEB	0.74	20	427	3	513	0	943	157.24
MIL EL <16121 3801 > #4-1/0 Stress Cones,5-15 KV					5.21	86.11	0.69	301.50	0.00	388.30	
6 Skirted	6.00	EA	EELEB	0.48	31	654	5	2,288	0	2,947	491.20
TOTAL Riser 4" GRS Single Conduit	2.00	EA			179	3,703	31	6,401	0	10,135	5067.28
BA.01.20.02.04.03. Stright Line 45/3 15KV Cross Arm											
MIL EL <16413 2102 > 3-1/2"x 4-1/2"x 8'0",Single Arm					1.72	26.37	9.81	110.09	0.00	146.27	
Wood Crossarm,w/Hardware &Braces	3.00	EA	EELEJ	2.91	5	100	37	418	0	555	185.03
MIL EL <16413 4102 > 15KV Class 55-5,Pin Insul w/Pin					1.28	19.60	7.29	11.81	0.00	38.70	
	3.00	EA	EELEJ	3.92	4	74	28	45	0	147	48.95
MIL EL <16413 4202 > 15KV Class 52-4,Suspension Insul					1.56	24.02	8.93	27.83	0.00	60.78	
w/Clevis & Strain Clamp	6.00	EA	EELEJ	3.20	9	182	68	211	0	461	76.88
MIL EL <16413 4302 > 15kv Class ??? ,Spool Insul w/					1.63	25.06	9.32	21.22	0.00	55.60	
Clevis	3.00	EA	EELEJ	3.06	5	95	35	81	0	211	70.33
TOTAL Stright Line 45/3 15KV Cross Arm	3.00	EA			23	452	168	754	0	1,374	458.08
BA.01.20.02.04.04. Dead End 45/3 15KV 3P Cross Arm											
MIL EL <16413 2102 > 3-1/2"x 4-1/2"x 8'0",Single Arm					1.72	26.37	9.81	110.09	0.00	146.27	
Wood Crossarm,w/Hardware &Braces	2.00	EA	EELEJ	2.91	3	67	25	279	0	370	185.03
MIL EL <16413 3102 > Down Guy 45' To 60' Pole					5.52	84.70	31.50	57.74	0.00	173.94	
	1.00	EA	EELEJ	0.91	6	107	40	73	0	220	220.03

BA.01. Electric Service	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL CST	UNIT COST
L MIL EL <16120 3201 > #1 AWG Cable,XLP,15KV, - WASTE - Shielded,Single Cndct,133% Insul	0.02	LF	EELEJ	4839.98	0.00 0	0.02 0	0.01 0	2.64 0	0.00 0	2.67 0	3.37
TOTAL UG 15KV Primary Conductors	1918.00	LF			38	732	272	6,341	0	7,346	3.83
TOTAL Underground Electric Conductors	1918.00	LF			38	732	272	6,341	0	7,346	3.83
BA.01.20.02.06. Ductbanks,Manholes,Handholes & Raceways											
BA.01.20.02.06.01. 2W-4" Concrete Encased Duck Bank											
MIL EL <02221 1802 > Trench, Chain Trencher, Med Soil 1' Wide x 4'Deep	75.02	CY	CODBB	34.38	0.04 3	0.44 42	0.33 32	0.00 0	0.00 0	0.77 73	0.98
MIL EL <02222 3401 > Trim Bottom of Excavation Hand Labor	75.02	SF	ULABE	75.00	0.02 1	0.16 16	0.02 2	0.00 0	0.00 0	0.18 17	0.23
MIL EL <02222 4202 > Compact Backfill w/Vib Plate Around Structures and Trenches	56.25	CY	CLACC	14.75	0.20 11	2.02 144	0.16 11	0.00 0	0.00 0	2.18 155	2.75
MIL EL <02221 5002 > Backfill Trench w/60 HP Tr Dozer Without Compaction	56.25	CY	CODTA	53.25	0.03 2	0.34 24	0.30 21	0.00 0	0.00 0	0.63 45	0.80
M MIL EL <03311 1171 > Pour Duct Bank by Direct Chute Type V Concrete	17.10	CY	ALABE	18.75	0.32 5	3.24 70	0.28 6	57.77 1,250	0.00 0	61.28 1,326	77.52
MIL EL <16111 3021 > 4"PVC Sch 40-EB Conduit w/Cplg Direct Burial, Conc Encased-Only	900.00	LF	EELEC	22.63	0.14 129	1.78 2,022	0.00 0	1.00 1,135	0.00 0	2.77 3,158	3.51
MIL EL <16111 3144 > 4" Base Spacer,avg 4" wide Direct Burial, Glued Coupling	225.00	EA	EELEC	15.88	0.20 46	2.53 721	0.00 0	0.68 194	0.00 0	3.21 914	4.06
TOTAL 2W-4" Concrete Encased Duck Bank	450.00	LF			198	3,038	72	2,579	0	5,688	12.64
TOTAL Ductbanks,Manholes,Handholes &	1.00	EA			198	3,038	72	2,579	0	5,688	5688.33
TOTAL Exterior Electrical Distribution	1250.00	LF			821	15,440	2,153	75,033	0	92,626	74.10

** CONTRACTOR SETTINGS **

		AMOUNT	PCT	PCT S	RISK	DIFF	SIZE	PERIOD	INVEST	ASSIST	SUBCON
AA Prime Contractor											
Prime Contractor's Field Overhead	C										
Prime's Home Office Expense	P		3.50								
Prime Contractor's Profit	C		7.33		0.090	0.090	0.075	0.075	0.075	0.100	0.042
Prime Contractor's Bond	P		1.20								
AT Acustic Treatment Contractor											
Prime Contractor's Field Overhead	P		10.00								
Prime's Home Office Expense	P		0.00								
Prime Contractor's Profit	P		10.00								
Prime Contractor's Bond	P		0.00								
CA Carpeting Contractor											
Prime Contractor's Field Overhead	P		10.00								
Prime's Home Office Expense	P		0.00								
Prime Contractor's Profit	P		10.00								
Prime Contractor's Bond	P		0.00								
EL Electrical Contractor											
Prime Contractor's Field Overhead	P		15.00								
Prime's Home Office Expense	P		0.00								
Prime Contractor's Profit	P		10.00								
Prime Contractor's Bond	P		0.00								
FP Fire Protection Contractor											
Prime Contractor's Field Overhead	P		15.00								
Prime's Home Office Expense	P		0.00								
Prime Contractor's Profit	P		10.00								
Prime Contractor's Bond	P		0.00								
GW Gypsum Wallboard Contractor											
Prime Contractor's Field Overhead	P		10.00								
Prime's Home Office Expense	P		0.00								
Prime Contractor's Profit	P		10.00								
Prime Contractor's Bond	P		0.00								
HV HVAC Contractor											
Prime Contractor's Field Overhead	P		10.00								
Prime's Home Office Expense	P		0.00								
Prime Contractor's Profit	P		10.00								
Prime Contractor's Bond	P		0.00								

** CONTRACTOR SETTINGS **

		AMOUNT	PCT	PCT S	RISK	DIFF	SIZE	PERIOD	INVEST	ASSIST	SUBCON
CT Ceramic Tile Contractor											
Prime Contractor's Field Overhead	P		10.00								
Prime's Home Office Expense	P		0.00								
Prime Contractor's Profit	P		10.00								
Prime Contractor's Bond	P		0.00								
AB Additive Prime											
Prime Contractor's Field Overhead	P		0.00								
Prime's Home Office Expense	P		3.50								
Prime Contractor's Profit	P		7.32								
Prime Contractor's Bond	P		1.20								
S1 Additive Site Work Contractor											
Prime Contractor's Field Overhead	P		10.00								
Prime's Home Office Expense	P		0.00								
Prime Contractor's Profit	P		10.00								
Prime Contractor's Bond	P		0.00								
A1 Work Not in Contract											
Prime Contractor's Field Overhead	P		0.00								
Prime's Home Office Expense	P		0.00								
Prime Contractor's Profit	P		0.00								
Prime Contractor's Bond	P		0.00								

** PROFIT WEIGHTED GUIDELINES **

PROJECT: Chapel (Training Estimate)
Kings Bay Naval Facility, GA
FY-93 LI-0101011
DACA21-95-B-0051

ESTIMATED BY US Army Engr. Dist., SAVANNAH

CHECKED BY: Brown, Filmer, Gill, Moody, Usher

DATE: 02/13/95

PROFIT OBJECTIVE FOR: AA Prime Contractor

FACTOR	RATE (%)		WEIGHT (0.03 - 0.12)		VALUE
1. Degree of Risk	20	x	0.090	=	1.800%
2. Difficulty of Work	15	x	0.090	=	1.350%
3. Size of Job	15	x	0.075	=	1.125%
4. Period of Performance	15	x	0.075	=	1.125%
5. Contractor's Investment	5	x	0.075	=	0.375%
6. Assistance by Government	5	x	0.100	=	0.500%
7. Subcontracting	25	x	0.042	=	1.050%
	100		PROFIT FACTOR:		7.325%

COMMENTS (Reasons for Weights Assigned):

DEGREE OF RISK = 0.09 custom design with some unique features in ceiling design, lighting controls, security, and classrooms with plumbing and a kitchen.

RELATIMVE DIFFICULTY OF WORK = 0.09 slightly more difficult than standard buildings.

SIZE OF JOB = 0.87 approximately a $2,400,000 project.

PERIOD OF PERFORMANCE = 0.075 approximately a 12 month construction project.

CONTRACTOR'S INVESTMENT = 0.075 is average investment.

ASSISTANCE BY GOVERNMENT = 0.10 little assistance by the government.

SUBCONTRACTING = 0.042 as 70-80% of work is subcontracted.

PROPOSED BIDDING SCHEDULE
EXPAND MAINTENANCE FACILITY
LINE ITEM : FY -
FORT RAMBO GEORGIA
Solicitation Number DACA21- -B-0000

ITEM	Description	Estimated Quantity	Unit	Unit Price	Total
1.	Modify Four (4) Existing Vehicle Maintenance Shops, Complete to 5-foot Line,	Job	L.S.	xxxxx	$----------
2.	Construction of New Vehicle Maintenance Shop,Excluding Two Bridge Cranes (Bid Item No. 3), Complete to 5-foot Line,	Job	L.S.	xxxxx	$----------
3.	Two Bridge Cranes, Complete	Job	L.S.	xxxxx	$----------
4.	Construction of Deployment Storage Building, Complete to 5-foot Line,	Job	L.S	xxxxx	$----------
5.	Construction of Out Buildings (Oil Storage House and Pump House), Complete to 5-foot Line,	Job	L.S.	xxxxx	$---------
6.	190 mm (7-1/2 Inch) Concrete Hardstand, Complete	9699	m²	@ $_____	$--------
7.	Roller Compacted Concrete (Including Approved Test Section)	19 757	m²	@ $_____	$--------
8.	Roller Compacted Concrete - Cement	980	445 N (100-Lb.) Unit	@ $_____	$--------
9.	Roller Compacted Concrete - Pozzolan	490	445 N (100-Lb.) Unit	@ $_____	$--------
10.	Site Preparation and Development, Including Utilities and Oil Tanks, Complete	Job	L.S.	xxxxx	$--------

TOTAL BASE BID - ITEMS 1 THROUGH 10 ..... $--------

ADDITIVE NO. I

11. Construction of Fuel Island Canopy, Complete	Job	L.S.	xxxxx	$--------

TOTAL BASE BID PLUS ADDITIVE NO. I
ITEMS 1 THRU 12 ..... $--------

ADDITIVE NO. II

12. Additional Bay to New Shop Building, Complete	Job	L.S.	xxxxx	$--------

TOTAL BASE BID PLUS ADDITIVE NOS. I and II
ITEMS 1 THRU 12 ..... $-------

SUBMITTAL REPORTS CHECKLIST

[] All cost and pricing is entered based on the Current Design Status.

[] Costs for Systems and Subsystems not shown in the design have been accounted for in the estimate.

[] Titles (Facility, System, Subsystem, etc.) at all levels not applicable to this project have been deleted.

[] Titles (Facility, System, Subsystem, etc.) at all levels have been edited and have the correct quantity and UOM per WBS.

[] Prime Contractors Field Overhead has been itemized to reflect project requirements.

[] Prime Contractors Bond has been set to calculate a Class B Bond.

[] Prime Profit has been calculated by the Weighted Guideline and each factor assigned has been explained in the NOTES [F7] for the Profit Weighted Guidelines Note Edit screen.

[] Subcontractors Overhead has been set as a percentage.

[] Subcontractors Profit has been set to calculate using the Weighted Guideline Method.

[] Prime and Subcontractors have been assigned at the appropriate locations within the project.

[] Any Subcontractors not applicable to this project have been deleted.

[] Sales Tax has been entered.

[] Contingencies and Escalations have been set.

[] The Project has been packed using Pack a Database from the SERVICES Menu.

[] The Savannah District Required Reports settings have been selected per paragraph 9.17.7.2. See 2-3 and 3-3 of this EXHIBIT.

[] The printer has been set to print Landscape with 172 characters per line and 66 lines per page.

[] Estimate Status (Concept, Final, etc.) has been entered in the Report Title Field or the Print Selected Reports Window.

[] Three Hardcopies of the Submittal Estimate have been made.

[] The project database and any other database that the AE added information (Models, Assemblies, Crews, Labor, etc) have been Saved to Compressed to floppy diskette from the SERVICES Menu.

MCACES 2nd View Summary
Order and Column Setup

FUNCTION
1 HELP
2 ADD
3 TITLES
4 EDIT
5 DETAIL
6 LOOKUP
7 NOTES
8 SELECT
9 MENU
10 EXIT

PROJECT BREAKDOWN

ID	Length	Trail Sep	Level Title	2nd View Order
Level 1 ID :	2	.	Scope	1
Level 2 ID :	2	.	Facility	2
Level 3 ID :	2	.	System	3
Level 4 ID :	2	.	SubSystm	0
Level 5 ID :	2	.	Assm Cat	0
Level 6 ID :	2	.	Assembly	0

Owner Cost Level : 0

Character used to separate title levels in database IDs

EST A PROJECT v5.30

FUNCTION
1 HELP
2 ADD
3 TITLES
4 EDIT
5 DETAIL
6 LOOKUP
7 NOTES
8 SELECT
9 MENU
10 EXIT

SELECT 2ND VIEW COLUMNS

Quantity Column Width : 12

Col Type	C	C	X	X	X
Rep Width	20	20	0	0	0
Title	CONTRACT	CONTRACT	(Unused)	(Unused)	(Unused)
Shadow	R	C	X	X	X

Type of shadow column; <F8> to see choices

EST A PROJECT v5.30

EXHIBIT A-9-11

MCACES Detail Report Format and Report Selections for ALL Submittals to Savannah District

FUNCTION
1 HELP
2 ADD
3 TITLES
4 EDIT
5 DETAIL
6 LOOKUP
7 NOTES
8 SELECT
9 MENU
EXIT

DETAIL REPORT FORMATTING

PAGE OPTIONS	Page Break Levels :	2							
	Table of Contents Levels :	3							
		0	1	2	3	4	5	6	7
ROW OPTIONS	Print Titles at Levels :		Y	Y	Y	Y	Y	Y	
	Print Totals at Levels :		Y	Y	Y	Y	Y	Y	
	Print Notes at Levels :	Y	Y	Y	Y	Y	Y	Y	Y
	Print Unit Cost Row :	Y							
	Print Page Footer :	Y							
	Show Cost Codes :	Y							
COLUMN OPTIONS	Print Crew ID :	Y							
	Crew Output :	Y							
	Unit Cost :	Y							
UPB TITLES	No. of Levels to Print :	0							
	Bracket Titles With :	N	N						
	Include Titles Notes :	N							

Title Level (1-6) at which to start a new page

EST A PROJECT v5.30

FUNCTION
1 HELP
2 ADD
3 TITLES
4 EDIT
5 DETAIL
6 LOOKUP
7 NOTES
8 SELECT
9 MENU
10 EXIT

REPORT SELECTION (PgDn to Print Selected Reports)

Project Settings :	N	Profit Guidelines :	Y
Contractor Settings :	Y		
Link Listing :	N	Measurement Units :	U.S.

	REPORT FORMAT TYPE			FOR LEVEL(S)						
	Direct	Indirect	Owner	0	1	2	3	4	5	6
Detail :	Y									
Project :	N	Y	N		N	Y	Y	N	N	Y
Contractor :	Y	Y		Y	N	N	N	N	N	N
Division :	N	Y	N	Y	Y	N	N	N	N	N
System :	N	N	N	N	N	N	N	N	N	N
2nd View :	Y									
Crew :	N			N	N	N	N	N	N	N
Labor :	N									
Equipment :	N									
Prime Labor Cost Level :	N									

Enter Y to select a report showing all chosen project settings

EST A PROJECT v5.30

EXHIBIT A-9-11

REPORT OF COST AND BUILDING/STRUCTURE ANALYSIS

Project Title: _____

Title of Individual Facility: _____

Base Name: _____ Location: _____

Line Item: _____ FY: _____

Design Based On (Drawing No.) Category Code: _____

Definitive: _____ Solicitation No.: _____

Standard: _____ Drawing No.: _____

Other: _____ Contract No.: C.O.E.

Design A-E Firm: _____

Estimating Consultant: _____

Bid Opening Date: C.O.E. Award Date: C.O.E.

Number of Bidders: C.O.E. CACES Estimate (Y/N): _____

CACES File Name: _____ Type Of Funds: _____

Construction Period: _____

Low Bidder: C.O.E.

Analysis of Project and Building Cost

	Complete Project Cost	Individual Bldg/Structure Cost
Budget Amount	$ C.O.E.	$ C.O.E.
Government Estimate	$ C.O.E.	$ C.O.E.
Low Bidder Amount	$ C.O.E.	$ C.O.E.
2nd Low Bidder Amount	$ C.O.E.	$ C.O.E.
3rd Low Bidder Amount	$ C.O.E.	$ C.O.E.

Building/Structure Parameters

	Gross Areas				
	Per Bldg. (Sq. Ft.)	No. of Bldgs.	Total (Sq. Ft.)	No. of Stories (w/o Basement)	
Budget				Basement Area (Sq. Ft.)	
Directive				Number of Identical Buildings:	
Final					

Description Of Construction

Foundation Walls		Foundation		Structural Frame	
Concrete	Unit Masonry	Piles	Spread Footings	Steel	Reinforced Concrete
Other:		Other:		Wood	None

Exterior Walls			
Concrete	Concrete Unit Masonry	Brick Faced Masonry	Other:

First Floor			
Structural Concrete	Concrete Slab On Grade	Concrete Slab On Fill-Elev.	Other:

Above First Floor			
Concrete	Concrete On Bar Joist	Wood	Other:

Roof Deck			
Poured Concrete	Precast Concrete	Metal Deck	Other:

Roofing			
Built-Up	Asphalt Shingle	Standing Seam Metal Roof	Other:

Provides Facilities For The Handicapped:	Yes	No

Conditioned Space

Air Conditioned Area (Sq. Ft):	Air Conditioning Tonage (Tons):	System Type:
Heated Area (Sq. Ft):	Heating Fuel Type:	System Type:

Fire Protection

Protected Area (Sq. Ft):	System Type:

(Use Space If There is More Than One Type of Fire Protection System)

Protected Area (Sq. Ft):	System Type:

Analysis of Liquid Fueling and Dispensing Facilities and Liquid Fuel Tanks

Cost Based On Award	Total		Storage (No. of Barrels)
Tanks Only	$ C.O.E.		
Pumps, Pump Houses and Piping	$ C.O.E.	Budget	
Other Related Facilities (Describe Below)	$ C.O.E.	Directive	
Government Furnished Materials/Equipment	$ C.O.E.	Final	

Description of Other Related Facilities Above:

Analysis of Paving

Pavement Classification

Runway	Taxiway	Road	Apron	Other:

Type of Pavement:	Rigid	Flexible	Other:

Cost Based On Award		Depth (inches)	Quantity (sy)	Total (Individual Item)	Per S.Y.
Paving	Wearing Surface			$ C.O.E.	$ C.O.E.
	Base Course			$ C.O.E.	$ C.O.E.
	Sub-base Course			$ C.O.E.	$ C.O.E.
		Quantity (cy)	Per (cy)		
Excavation & Grading			$	$ C.O.E.	$ C.O.E.
Drainage				$ C.O.E.	$ C.O.E.
Other related Work (Specify):				$ C.O.E.	$ C.O.E.
Government Furnished Equipment and Materials				$ C.O.E.	$ C.O.E.

Remarks

Date Prepared:	Person Preparing the Report:

U.S. ARMY ENGINEER DISTRICT, SAVANNAH
CORPS OF ENGINEERS
P.O. BOX 889
SAVANNAH, GEORGIA 31402-0889
Date

GOVERNMENT ESTIMATE OF REASONABLE CONTRACT COST
FOR
MODIFICATION TO CONTRACT NO. DACA 21-8 -C-0000
PROJECT NAME
BASE NAME BASE LOCATION

MCB NO. 89-17-C

ITEM NO.	DESCRIPTION	AMOUNT
	Delete 10" Precast concrete aircraft parking apron	$100,000.00
	Add 15" Precast concrete aircraft parking apron	$150,000.00
	Total additional contract cost to the Government for this modification	-$ 50,000.00

Total estimated additional construction time required to incorporate this modification into existing construction contract - 10 calendar days

Prepared By: Approval Recommended By: Approved By:

EXHIBIT A-9-14

MERGING MULTIPLE PROJECT DATABASES CHECKLIST

[ ] Project Databases must have the identical layout to Merge Correctly.

[ ] The Prime Cost Engineer created the agreed upon total project layout as determined in paragraphs 9.17.5.1 through 9.17.5.1.5 conforming to the instructions in paragraphs 9.17.6 through 9.17.6.7 and 9.17.6.11 through 9.17.6.12. Reference EXHIBIT A-9-4.

[ ] Copy this newly created project layout to Project Databases for each of the Cost Engineering disciplines that will be preparing their cost data separately. Each of these Project Databases are exactly the same at this point.

[ ] Each Cost Engineering discipline (including the Prime) shall edit their individual Project Database and DELETE and PACK all System Titles that are not applicable to their discipline.

[ ] Each Cost Engineering discipline (including the Prime) shall complete the quantity take-off following the same format that is in their Project Database in accordance with paragraphs 9.17.6.7 through 9.17.6.12.

[ ] After each discipline has completed their project and BEFORE merging, each project should be printed. Choose "Print Selected Reports" from the REPORTS Menu and print the individual project to be sure no database is corrupted and all errors have been corrected. You can send these reports to a file instead of the printer.

[ ] PACK the Project Database one final time before Merging.

[ ] The Prime Cost Engineer will collect the individual projects for merging into the Prime Project. Make sure there is adequate hard disk space for EXTRACTING and MERGING project.

[ ] MAKE DUPLICATE COPIES of all Project Databases before beginning the EXTRACTING/MERGING process.

[ ] Carefully read the Merge and Extract functions in Chapter 18.7 and 18.8 of the MCACES Software Manual, Vol. I.

[ ] Practice Extracting and Merging on small project databases to insure you understand the complete process.

[ ] Select the Project Database to be Extracted and press [Enter] to open up the project.

[ ] Using [Shift] [F9] or Mark from the MARK Menu to mark Titles to be Extracted. Titles should be marked at the highest level applicable for the information to be Extracted.

[ ] From the MARKS Menu select "Extract To..." or press [Alt] [X] to begin the Extract function. This will create an identical database of the marked items in a unique filename. Write down the filename for later use.

[ ] Now select the Project Database where the extracted data is to be merged. Press [Enter] to open the database and choose "Merge From..." on the MARK Menu or press [Alt] [E]. You will now be prompt to enter the path and filename you Extracted To above.

[ ] Examine the project to confirm that everything was merged properly.

EXHIBIT A-9-15

PRINTING THE UNIT PRICE DATABASE AND OTHER DATABASES

It is recommended that when printing the Unit Price Book Database (UPB) that you print only one CSI Division at a time and that you print only on a laser printer. The approximate number of pages for each Division with Full Description are:

DIV	PAGES	DIV	PAGES
01	72	09	42
02	285	10	28
03	58	11	39
04	36	12	2
05	46	13	112
06	25	14	16
07	30	15	305
08	50	16	350

CHECKLIST

[ ] Locate the cursor on the Unit Prices of the DATABASE WINDOW.

[ ] Choose "Select Reports to Print" from the REPORTS Menu.

[ ] In the "HEADING" field of the Select Reports Screen type in the description you want to see printed at the top of each page in the report.

[ ] In the LIST Unit Price field choose "YES - List All" using [F8] SELECT, or by pressing the [Space Bar] until it appears in the field and press [Enter] to confirm.

[ ] Set the range you want to print in the FROM and TO fields. For example to print CSI Division 01 only, type in "01" and press [Enter] in the FROM field and "0199999999" and press [Enter] in the TO field. This will print starting at the very beginning of Division 01 and stop with the last CSI numbered item.

[ ] Set the LIST Crews, Labor Rates, and Equip Rates fields to "NO - Exclude All" following the method in LIST Unit Price above.

[ ] Under LISTING OPTIONS set the Source(s) field to "Exclude".

[ ] Let the Pricing Date field default to the current date.

[ ] Set UPB Material Indicators field to "No".

[ ] Set UPB Table of Contents field to "Yes".

[ ] Set the Formatting field to "Full Description" and [Page Down] to confirm entire Screen.

[ ] You should now be located at the Print Selected Reports screen. The Report Title field defaults back to the description entered in the HEADING field.

[ ] The Print Device field should be set to operate with your system.

[ ] Printer Setup field should be set for Landscape. See paragraph 9.17.7.3, Chapter A-9 of this manual.

[ ] Other databases may be printed by first placing the cursor on the database in the Database Window and choosing the REPORTS Menu. Fill in the other fields as appropriate.

A-E Contract Submittal Registry

Required Items in a Submittal	PE Phase	35%	60%	100%	Corrected Final	Modification
Cost Estimate Submittal Checklist						
Current Working Estimate Signature Sheet						
Typed Summary						
Proposed Bidding Schedule						
MCACES Printed Estimate						
Quantity Take-Off						
FLOPPY DISKETTE of Project Database						
FLOPPY DISKETTE of any New Databases						
Plan of Construction						
List of Principle Items of Equipment and Hard Metric Items						
Written Narrative If CWE exceeds Programmed Amount or Current Estimate is > 5% of Previous Estimate						
Annotated Review Comments						
List of newly created Assemblies						
Modification Typed Summary						
Equipment Rates						
Parametric Data Sheets						

Shaded Areas indicate submittal requirement per type submittal.