

## SECTION 00200 – REQUEST FOR QUALIFICATIONS

REFERENCE NO:001-2001

PUBLICATION DATE: June 1<sup>st</sup>, 2021

### 1. SOLICITATION

The purpose of this RFQ is to solicit proposals for the purposes of entering into a contract through competitive negotiations for the professional services of an Architectural / Engineering Firm, with experience in Design of Major Hospitals and Medical Centers.

### 2. PROJECT DESCRIPTION:

The A/E is responsible for the professional quality, technical accuracy, and coordination of all designs, drawings, specifications, cost estimates, needed studies (EA, EIA) other work or materials furnished, and other contracted services including those prepared by his consultants for a new fully function 200 bed hospital (New 200 Bed Hospital)

### 3. RECEIPT OF PROPOSALS:

10 copies of the qualification proposal shall be received by the Chief Procurement Officer LBJ Tropical Medical center, Pago Pago, American Samoa, 96799 no later than 2:00pm Friday July 30<sup>th</sup>, 2021.

### 4. DOCUMENT:

Architectural and Engineering Guide Documents may be examined at LBJ Tropical Medical Center, in the Village of Faga'alu, or maybe obtained on line upon request to the LBJ Tropical Medical Center Chief Engineer email sa.mavaega@ljb.as.

### 5. REQUIREMENT

Fifteen (15) or more years in the field of Architectural and Engineering for Hospitals and Medical Centers.

### 6. RIGHT OF REFUSAL

LBJ Tropical Medical Center reserves the right to refuse any Proposal.

### 7. LBJ Tropical Medical Center reserves the right to waive any lawful informalities in the process as may be in the best interest of LBJ Tropical Medical Center.

APPROVED BY: \_\_\_\_\_

Chief Procurement Officer  
LBJ Tropical Medical Center

# ARCHITECT/ENGINEER (A/E) GUIDE

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I INTRODUCTION

A. Introduction

1. This A/E guide is to be the basis for Architect/Engineering (A/E) Firms in preparation of their Qualification Proposal for preparing plans and specifications for a new 200 bed hospital at the current Tafuna Housing Compound. This publication is issued to inform Architect/Engineering Firms of the policies, general procedures and requirements of the American Samoa Government appertaining to professional services performed under architectural and engineering contracts, and to obtain quality contract documents. It is essential that all A/E personnel, associates and consultants responsible for the preparation of construction documents (drawings, specifications and cost estimates), studies or other services, follow the procedures and instructions contained herein.

Special emphasis is placed on the responsibilities of the A/E under the terms of the contract with the American Samoa Government. This information is contained in Section II. Other sections define the standards of design, detailed requirements, format, presentation and submittal of drawings, specifications, cost estimates, and other related documents. Sections IV through VII outline technical requirements for each discipline, and copies of these sections should be given to the appropriate design team member.

This guideline defines the minimum requirements for each submission in the production of Pre-Design (PD), Concepts, Schematic Design (SD), Design Development (DD), and Construction Documents (CD). The design requirements are defined by the Scope of Work (SOW), as indicated in the Request For Proposal (RFP). This guideline is designed to give the A/E an understanding of what is required and what must be completed before the final construction documents are released for bidding. This guideline does not relieve the A/E of their professional responsibility to produce a correct, complete, and fully coordinated set of construction documents in accordance with the industry standard practices, the latest edition of the AIA Guidelines for Construction and

Equipment of Hospitals and Healthcare Facilities, and American Samoa Government criteria.

2. This guide provides:
  - a. Guidance for the development of design documents, specifications, and contract documents.
  - b. Guidance on architectural and engineering design features.
  - c. Guidance on submittals.
  - d. Supplemental information.

Our underlying philosophy is one of responsive, responsible, and defensible design for New 200 Bed Facility with a commitment to design principles and practices which are requirements, - bases, logical, and conservative. The design shall produce facilities that are straightforward and businesslike. They must respond to the user needs, but reflect a responsible use of the funds available. They must be defensible in terms of scope, cost, and appearance. Appreciate design is:

- Well planned
- Effective in function
- Appropriate in form and appearance
- Cost-effective
- Constructible
- Adaptable and durable over time in the operating environment, giving proper weight to each of the above elements.

Before beginning the design, the A/E should review current criteria, instructions and guide specifications provided by the American Samoa Government, and make a thorough study of conditions at the site and requirements of the projects. If, after an analytical review, the A/E is of the opinion that the deviation from instructions from the American Samoa Government criteria or building codes, which are predominate in the local area. American Samoa Government encourages the A/E to use his ingenuity, talent and professional expertise to develop the best possible design for all the elements of the project with the constraints imposed. However, the use of untried concepts and materials for which no "track record" exists, is discouraged and will be rejected. Those projects, which in themselves are state-of-the-art, will be acceptable.

## B. Definitions

Boiler Plate

General Conditions; bidding forms; contract provisions and clauses; and other reprinted forms and text for inclusion in the contract documents that do not required editing by the A/E.

Submission Checklist	A checklist indicating the required actions to be completed for each submission. The respective checklist is to be filled out and certified by the A/E and included with the submission. Checklists are included in Appendix A.
Group I – Equipment	Fixed, built-in, attached, and installed equipment normally included in the construction contract.
Group II – Equipment	Major moveable equipment – items having a useful life of 5 years or more (Moveable equipment does not require attachment to the building or utility service, other than provided by an electrical plug or quick disconnect fitting. Examples include chairs, beds, bassinets, desks, computers and printers, network file servers, typewriters, system furniture, sphygmomanometers, microscopes, centrifuges, portable whirlpool units, exercise bars, refrigerators, and linen carts.)
Group III – Equipment	Minor moveable equipment – items having a useful life of less than 5 years (These items are of relatively small cost and size and lend themselves to on-site storage for replacement of lost or worn out equipment. Examples include linens, blankets, gowns, wash basins, bed pans, pipettes, surgical instruments, silverware, and chinaware.)
Special Purpose	Group I, II, or III Technical, medical, or scientific equipment needed to operate a laboratory, a hospital, a clinic, a clinical research patient care unit, or equipment which is specific to a single purpose and not generally suitable for other purposes (Examples of such equipment include incubators, electric ovens, sterilizer, vacuum and pressure pumps, centrifuges, water baths, casework, sinks, shelves, patient headboards, and workbenches for microscopes. Special-purpose equipment may be classified as either fixed or moveable equipment.)

Record Documents	An updated set of construction documents, specification and drawings, edited to show the actual work performed in comparison with the original specifications.
Record Drawings	An updated set of drawings approved and noted to show the differences between the actual and the work as originally proposed.
Record Specifications	An updated specification edited to show the actual work performed in comparison with the original specifications.

### C. Abbreviations

ACI	American Concrete Institute
ADA	Americans with Disabilities Act
ADAAG	Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities
A/E	Architect/Engineer (The design, technical consulting firm engaged for professional architectural and/or engineering services.)
AIA	American Institute of Architects
AIA	Guidelines American Institute of Architects Guidelines for Construction and Equipment of Hospitals and Medical Facilities.
ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
BOCA	Building Officials and Code Administrators International, Inc.
CAD	Computer-Aided Design
CAD	Layers American Institute of Architects CAD Layer Guidelines
CD	Construction Documents (includes drawings and specifications)
CPO	Chief Procurement Officer
C POTR	Chief Procurement Officer's Technical Representative

CSI	Construction Specifications Institute
CVS	Certified Valve Specialist
DD	Design Development
DOE	Department of Energy
EPA	Environmental Protection Agency
IES	Illuminating Engineering Society
LBJTMC	LBJ Tropical Medical Center
LSC	Life Safety Code (NFPA 101)
M&O	Maintenance and Operation
M&M	Medicare/Medicaid
NBC	National Building Code
NEBB	National Environmental Balancing Bureau
NEC	Nation Electrical Code
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
NIH	National Institutes of Health
NIST	National Institute for Standards and Technology (Formerly NBS National Bureau of Standards)
NSF	National Sanitation Foundation
O&M	Operation and Maintenance
PD	Pre-Design
PM	Project Manager

PO	Project Officer
RFP	Request For Proposal
SBCCI	Southern Building Code Congress International, Inc.
SD	Schematic Design
SOW	Scope of Work
STC	Sound Transmission Coefficient
UBC	Uniform Building Code
UFAS	Uniform Federal Accessibility Standards
UL	Underwriters Laboratories, Inc.
VE	Value Engineering
II.	SCOPE OF WORK AND RESPONSIBILITIES OF THE A/E

#### A. Quality Control and Reviews

1. The A/E is responsible for the professional quality, technical accuracy, and coordination of all designs, drawings, specifications, cost estimates, needed studies (EA, EIA) other work or materials furnished, and other contracted services including those prepared by his consultants for the design of a New 200 Bed Hospital at the Tafuna Housing Compound.
2. The A/E is responsible for designing the facility for the lowest total cost including original construction cost and accumulated maintenance and operating cost for the duration of the design life.
3. The A/E's work shall be subject to the American Samoa Government oversight, direction, control, and approval.
4. American Samoa Government reviews are to assure all programs, statutory and regulatory provisions are included or met, the review is not intended to indicate a complete or detailed check of all documents, calculations, codes, etc. American Samoa Government American Samoa Government review does not relieve the A/E of any responsibility for checking their own work; verifying existing conditions, complying with the codes, standards, and the Program

of Requirements (POR); and producing a complete coordinated set of documents. It will be the responsibility of the A/E, acting in a professional capacity, to ensure the accuracy, completeness and correctness of the cost estimate and all engineering concepts and details of the work, including the coordination of the various architectural, structural, mechanical, electrical, and other subdivisions thereof with each other and with the specifications.

5. Reviews and approvals will be provided, in part, by the American Samoa Government Agencies. All review comments will be coordinated through LBJTMC Chief Engineer. Changes will be incorporated in the design documents before work on the next design submission begins. Refer to Chapter VII, Section G for additional information on review.

#### B. A/E Project Manager

The A/E shall designate a Project Manager (PM). The A/E PM shall be familiar with the requirements in the A/E PM will provide necessary design guidance for the successful completion of this work and coordinate with the assigned American Samoa Team.

#### C. Document Distribution

The A/E shall distribute documents as required in the contract.

### Scope Changes

- D. Any proposed deviation from the project SOW must be reviewed with the Chief Procurement Officer's Technical Representative (CPOTR) and approved by the Chief Procurement Officer (CPO) before any action can take place. When major changes in the SOW are required, appropriate contract modifications will be negotiated with the A/E by the minor changes within the general project scope are required, the A/E will make the adjustments when directed to by the CPO or his Technical Representative.

#### E. Document Ownership

All tracings, designs, specifications, notes, computer aided design (CAD) files, and other related work shall become American Samoa Government property.

#### F. Errors and Negligent Performance

The A/E shall correct or revise any errors or deficiencies in designs, drawings, specifications, estimates, and other services without additional compensation. The A/E shall remain liable (in accordance with applicable law) for all damage caused by the A/E's (or its consultants') negligent performance of any of the services furnished under the A/E's contract.

Design errors or omissions resulting in damages or extra cost to the American Samoa Government will be evaluated for potential A/E financial liability. If the American Samoa Government determines the A/E is liable for a design deficiency, the CPO will notify the A/E. Reimbursement of costs incurred by American Samoa Government resulting from A/E's errors or omissions, or its negligent performance, or breach of contractual duties will be actively pursued.

### III GENERAL DESIGN REQUIREMENTS

#### A. General Requirements

In all design projects, the primary source of design criteria will be the latest edition of the AIA Guidelines, and applicable current Health Care codes and standards such as JCAHO and VA Hospital Health Care Facilities.

#### B. A/E Site Investigation

It is the A/E's responsibility to visit the site, inspect the location of the work, become acquainted with all local conditions, verify and identify all pertinent existing conditions, review existing drawings, and consult with the American Samoa Government administration and facility personnel. The A/E shall obtain necessary licenses and permits, and comply with all applicable laws, codes and regulations in connection with this investigation and shall be responsible for all damages to persons or property that may occur. Before starting the work, it is the responsibility of the A/E to visit the site and inspect the locations of the work and to become acquainted with all pertinent local conditions.

#### C. Codes and Standards

1. The design shall conform to the latest edition of the following nationally recognized codes and standards, depending on the code jurisdiction for the project.
  - a. National Fire Protection Association (NFPA) Codes and Standards.  
American Standard Safety Code for Elevators, Dumbwaiters, and Escalators

- b. Americans with Disabilities Act Accessibility Guidelines (ADAAG)
  - c. Uniform Federal Accessibility Standards (UFAS)
  - d. Executive Order 12902 (Energy Efficiency and Water Conservation at Federal Facilities)
  - e. Department of Energy (DOE) – Conservation Standards (10 CFR Part 435)
  - f. Applicable Underwriters Laboratories, Inc. (UL) Standards
  - g. Illuminating Engineering Society (IES) Lighting Handbook
  - h. National Council for Radiation Protection and Measurement (NCRP) Reports #35 & #49
  - i. Joint Commission on Accreditation of Healthcare Organization (JCAHO) for Hospitals, Appendix D Requirements for Interim Life Safety Standards.
  - j. Veteran’s Association Health Care Facilities (VAHF)
  - k. Rules and regulations of the local utility companies
  - l. Other applicable standards
  - m. NFPA’s codes and standards are the base codes of reference.
2. The design shall also conform to one of the following listed supplementary building codes. When there is a conflict between the NFPA codes and standards and the supplementary building code being used, NFPA codes and standards shall govern. These requirements are considered minimum and more restrictive requirements could be followed should it be required by a state and or local authority having jurisdiction or by a funding agency.
- A. Uniform Building Code (UBC)
  - B. National Building Code (NBC)

C. Uniform Mechanical Code (umc)

D. Uniform Electrical Code (uec)

E. Uniform Plumbing code (UBC)

F. Uniform Fire Code (UFC)

3. Problems arising from specific project conditions shall be resolved through sound design practice and recognized standards.
4. When deviations from the criteria and standards are required to meet special conditions or concerns, determinations shall be the responsibility of the CPOTR. Conflicts between code requirements shall be documented and copies submitted to the CPOTR for consideration.

#### D. Value Engineering

It is the A/E's responsibility to use Value Engineering and life cycle principles throughout the design phase of the project, thereby making efficient and effective use of the construction and operational budgets. Depending on the size of a project, American Samoa Government may require a formal value engineering (VE) study. A formal VE study can be accomplished by a separate VE consulting firm under contract with the American Samoa Government or through the A/E contract. The A/E will be required to brief the VE firm about the project requirements and design concepts, provide copies of design documents to the VE firm, and review and comment on the VE's recommendations. The A/E shall modify the construction documents to incorporate all accepted VE's recommendations.

#### E. Value Engineering Study

A consultant independent of the A/E is required to conduct the VE studies. The VE team will be lead by a Certified Value Specialist (CVS) registered with the Society of American Value Engineers (SAVE). VE team members are required to have, at a minimum, experience in health care and must have participated in related VE studies previously. All disciplines applicable to the project at each phase shall be represented on the team.

The A/E will not be a team member for the VE study. The A/E's only involvement in the study will be to provide information to the VE team and to attend the oral presentation.

The VE team will give an oral presentation of the team study results at the end of the study. Each VE study will be documented in report format and will contain the following:

1. A description of differences between the existing and proposed design, comparison of the advantages and disadvantages of each, justification when an item's function is altered, and changes affecting system facility requirements. This may include but is not limited to sketches, calculation, models, etc.
2. Lists and analyses of design criteria or specifications that must change if the VE study item is accepted.
3. A separate detailed estimate of the impact on project costs for each VE study item.
4. A description and estimate of costs the American Samoa Government may incur in implementing the VE study item, such as design change costs and test and evaluation costs.
5. A prediction of any effects the proposed changes have on life-cycle costs and energy savings. All cost comparisons shall use a 30 year building life as a guideline. The discount rate shall be based on the composite yield on all outstanding T-Bonds neither due or callable in less than ten years as reported by the Federal Reserve Board in statistical release H. 15. All cost analyses shall use the current dollar or present worth approach. If other methods or assumptions are used, proper justification shall be included with the VE study.
6. The effect the VE study item will have on the design or construction schedule.

#### F. Energy Efficiency and Water conservation

The design shall meet the requirements of Executive Order 12902 – “Energy Efficiency and Water Conservation at Federal Facilities.” The design is to minimum size the life cycle cost by utilizing energy efficiency, water conservation, or other renewable energy technologies. The design shall meet or exceed the energy performance standards applicable as set forth in 10 CFR 435 or by local building standards.

## IV DRAWING PREPARATION

### A. Drawing Format

1. **Sheet Size:** Within a single project, all contract drawings shall be uniform in size. The standard sheet size is Arch 4, 24, x 36 (610 x 914) or as specified in the SOW.
2. **Match Lines:** Floor plans requiring division onto more than one sheet shall be provided with match lines. These shall be cross-referenced on each sheet.
3. **Key Plan:** Projects requiring more than one sheet for each floor plan shall include a key plan on each floor plan sheet. The key plan shall show the location of the partial floor plan in relation to the whole floor plan. The key plan shall be located near the title block and oriented to match the floor plan. All partial floor plans shall be oriented the same direction on the sheets.
4. **Standard Details:** Reference details that are typical and apply to the specific project are to be incorporated in to the drawings by the computer-aided design (CAD) equipment. However, such standard details must be applicable to the specific project.
5. **Quality of Drawings:** All drawings submitted for review shall represent the best professional quality of graphic presentation. Drawings shall be legible, accurate, and properly coordinated. Final drawings shall be in CAD format with layers based AIA layering guidelines. If, in LBJTMC's opinion, the quality of the drawings does not meet these requirements, the drawings will not be accepted.
6. **Placement of Drawings on Sheets:**
  - a. **General:** Drawings should be arranged on sheets with economical use of space and without crowding or overlapping.
  - b. **Combination of Drawings:** Different categories of drawings may be combined. Categories should be separated from interior details if both are shown on the same sheet. Similarly, plans should be separated from elevations. For small projects, the sheet numbering system (see IV .J) may be modified.
  - c. **Floor Plans:** One or more floor plans may be placed on a single sheet depending on the size of the project. If the entire project is shown on one sheet or if the plans elevations are drawn on the same sheet, the plans should be placed at the bottom of the sheet.

- d. Elevations and Sections: Several elevations and sections may be placed on one sheet as long as they remain legible. When more than one sheet is used, the elevation showing the main entrance should be placed on the first sheet.

#### 7. Floor and Roof Plans:

- a. Scale: The scale selected shall allow all necessary information to be shown clearly. 1/8"/ft or 1/4"/ft scale may be selected.
- b. Name of Spaces: On the floor plan in the center of each space, the name and number for the space should appear and be underlined.

(1) If the space is too small for space name and number, they should be placed in a clear area outside the space with an arrow pointing to the space.

(2) On mechanical and electrical floor plans, names may be omitted from the spaces to allow clarity of utility systems. Names should then be placed in schedules located adjacent to the plans.

#### B. Space Identification Numbers

Unique identification numbers shall be assigned in the SD phase. All design spaces shall be identified with a departmental identifier and sequential POR number. No space number shall be duplicated. (i.e., 11-01 where 11 is for the Acute Care Nursing department and 01 is the first room/space in the POR space allocation list for the Acute Care Nursing department. 21-01 where 21 is the Laboratory department and 01 is the first room/space listed in the POR space allocation list for the laboratory department.) This numbering system will be replaced with the "Facility Room Numbers" after the DD phase documents are approved.

#### C. Facility Room Numbers

All room/spaces shall be numbered with a floor identifier (if required), a corridor/departmental identifier, and a sequential room number. The first digit or letter indicating the floor level (B101, 1101, 2101, P101, etc.), the second digit indicating the corridor or department, and the third indicating a sequential room number. When there are more than nine departments a fourth digit is to be used. No room number shall be duplicated. All rooms with access to a building or departmental corridor shall only have a numerical identifier. Rooms accessed through another room shall have an alpha character appended to the main room number (i.e., Patient Bedroom numbered 1101, the interior bath would be 1101a.) Room numbering shall follow a logical progression (way finding) on each floor. Space numbers shall be assigned to stairs, elevator, dumbwaiters, escalators, and major duct shafts. The same space number shall be repeated on



- |                    |                      |
|--------------------|----------------------|
| 2. Landscaping     | L – 1, L – 2, etc.   |
| 3. Architectural   | A – 1, A – 2, etc.   |
| 4. Structural      | S – 1, S – 2, etc.   |
| 5. Mechanical      | M – 1, M – 2, etc.   |
| 6. Plumbing        | P – 1, P – 2, etc.   |
| 7. Electrical      | E – 1, E – 2, etc.   |
| 8. Fire Protection | FP – 1, FP – 2, etc. |

Additional sections (e.g., demolition, site utilities, kitchen equipment, and laboratory furniture) may be added as warranted by specific projects.

#### K. A/E Certification and Signatures

The design of architectural, civil, structural, and mechanical electrical, or other engineering features of the work shall be accomplished, reviewed and approved by registered architects or engineers. The architect or engineer shall be registered to practice their respective disciplines in a state or possession of the United States, Puerto Rico, or the District of Columbia.

In geographic areas of seismic level three or higher and permafrost activity, specific state licensing is required to ensure knowledge of these particular issues for responsible and adequate system design.

#### L. Drawing Changes

All drawing changes shall be coordinated and made in the original CAD application. When changes are made to the originals appropriate change symbols must be used to indicate the changes. The “Revision” section of the title block on the sheet is to be completed with the required information, symbols, signatures, and dates.

#### M. Record Drawings

When the contract option for Record Drawings is accepted, the A/E shall obtain the marked-up red-lined documents from the construction contractor when construction is complete. The A/E is to update the original construction documents (including the CAD files). The update is to include all amendments and modifications issued. When shop drawings are included, record a cross-reference at the corresponding location on the contract drawings. After the documents are updated, they are to be marked "RECORD DRAWINGS" and dated. The record documents are to be turned over to the CPOTR within 30 days after completion of the construction.

## V. SPECIFICATION PREPARATION

### A. Specification Format

1. The project specifications shall be based on the Construction Specifications Institute (CSI).

Document (MP-2-1) "MASTERFORMAT" sixteen divisions, three part format. Copies can be purchased from AIA Service Corporation, 44 Industrial Part Dive, P.O.Box 753, Waldorf, Maryland 20601 or the local State Society of Architects.

2. Guide specifications will not be provided by LBJTMC unless specifically noted in the SOS or A/E contract.
3. Contract specifications shall be based upon materials and performance characteristics established by the American National Standards Institute (ANSI), the American Concrete Institute (ACI), the American Society for Testing and Materials (ASTM), and other Government and industry standards. All references shall be the latest edition.

### B. Boiler Plate

Boiler Plate documents (bidding documents) will be provided by LBJTMC for incorporation by the A/E into the specifications. The construction documents for each project are to be coordinated with the Boiler Plate by the A/E. The Boiler Plate includes general conditions, bidding forms, and other preprinted forms and text for inclusion in the contract documents.

### C. Coordination of Specifications and Drawings

The contract drawings and specifications shall be coordinated for respective functions. Specifications shall include tests, materials, referenced standards, shop drawings, descriptive literature, samples, certifications, performance requirements, descriptive characteristics, finishes, workmanship, installations, and related work.

#### D. Cover Sheet

The A/E shall provide covers with the American Samoa Government approved design for each volume of specifications.

#### E. Bid Items

The A/E shall coordinate all bid items and the bid schedule with the American Samoa Government.

#### F. Quality Control Reviews

The A/E shall perform a quality control review of all specifications before each submittal. Reviews for technical accuracy, coordination of work within each discipline, coordination of work among disciplines, and coordination between drawings and specifications shall be included. When required in the SOS, the A/E shall provide a red-lined check set of specifications as evidence that this review has been accomplished. Refer to paragraph II-A.

#### G. Proprietary, Restrictive, or Approved Equal Specifications

1. Whenever possible, ensure that references in specifications are to widely recognized standards or specifications promulgated by governments, industries, or technical societies.
2. Trade names and proprietary systems and designations may be referenced to establish a "standard of quality", noting at least three trade names. Whether or not trade names are used, specifications must include a complete description or listing of all salient features.
3. Specifications shall be developed to ensure competitive bidding without proprietary (sole-source) restrictions in accordance with FAR Parts 10-11 except where proprietary, sole source procurement is

directed by the CO. When identification of material or equipment by manufacture's name, trade name, or catalog number is unavoidable, a minimum of three acceptable brands should be listed and the essential physical and functional characteristics require should be set forth.

4. Proprietary, sole source procurement is allowed in specific situations, only if directed by the CO.

#### H. Selection of Materials

Selection of materials and procedures shall be based on project location, design requirements, cost analysis, and availability. Readily available material and equipment should be specified whenever possible.

#### I. Testing

##### 1. HVAC Testing, Adjusting, and Balancing.

- a. Testing, Adjusting, and Balancing services shall be performed by an independent sub-contractor.
- b. System Testing, Adjusting, and Balancing shall be accomplished before final inspection and shall include: air, heating water, domestic water, chilled water, medium or high temperature hot water, boiler combustion, incinerator combustion, steam, distilled water, and deionize water.
- c. The balancing process shall include the adjustment of all equipment within the system such as air terminal boxes, coils of all types, heat converters, pumps, fans, unit heaters, and air handling units.
- d. Before any testing or balancing can be performed, all systems must be complete. All controls must be installed and operational.

##### 2. Other Systems

- a. Testing of specialized systems, such as medical gases, shall be in accordance with appropriate codes and standards.

b. Material testing shall be in accordance with approved standards.

#### J. Record Specifications

When the contract option for Record Specification is accepted, the A/E shall obtain the marked up red-line specifications from the construction contractor when construction is complete. The A/E shall update the original specifications to show the actual installation. The update is to include all amendments and modifications issued. Particular attention shall be given to substitutions, selection of options, and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. After the documents are updated, they are to be marked "RECORD SPECIFICATIONS" and dated. The record documents are to be turned over to the CPO within 30 days after completion of the construction.

#### K. Project Manual

The A/E shall include a section in the specifications that instructs the construction contractor to provide the following information in three binders. The binders are to be a maximum of 76 mm thick. The information is to be organized in sections and tabbed. The manuals are to be submitted to the American Samoa Government prior to final payment. When the contract option for "RECORD SPECIFICATIONS" is accepted, the A/E shall obtain the manuals from the construction contractor and submit them with the "RECORD SPECIFICATIONS" within thirty days after completion of the construction. The project manual shall include the following.

1. Record product Data: One copy of each product data submittal shall be marked to show significant variations in actual work performed in comparison with information submitted.  
Include variations in products delivered to the site, and variations from the manufacturer's installation instructions and recommendations.
2. Record Sample Submitted: Samples of material used for record purposes.
3. Maintenance Manuals: Operation and maintenance data that includes the following information:

- a. Copies of warranties
- b. Emergency instructions
- c. Recommended maintenance cycles
- d. Inspection procedures
- e. Fixture lamping schedule
- f. Spare parts list
- g. Wiring diagrams
- h. Shop drawings and product data

#### L. User Manual

Prior to project completion, the A/E shall prepare a user manual that will explain how the new health facility is intended to be operated. The manual shall address the “use” or functional organization of the health facility and explain how to use the health facility in simple language. Major considerations in planning, layout, and design are highlighted. Significant design features, cultural aspects, major pieces of equipment, and potentials for flexibility and expansion are to be made clear.

The manual is intended for all staff members working within the health facility. Since the informational need will vary among staff, the manual will provide information on the functions and system at different levels of detail. The manual also needs to be flexible for both its day-to-day use and for the addition of updated material as it is developed. This manual is not an operation and maintenance (O&M) manual. The O&M manual is covered in “K. Project Manual” above.

The manual shall include, but not limited to the following topics: introduction/executive summary; an overview of the facility design and operational concept; building circulation/individual department review; HVAC systems; plumbing systems; electrical systems; fire protection systems; communication systems; site design; energy conservation; code

conformance/waivers; signage/way finding; and any supplemental information.

#### M. Utility Marking

The following color codes are to be used for utility piping and physical hazards: (1) "Piping-American National Standards Institute – A13.1, Scheme for Identification of Piping Systems;" (2) "Medical Gases Signage – National Fire Protection Association – 99, Health Pamphlet C-9, Standard Color Marking of Compressed Gas Cylinders intended for Medical Use;" and (4) "Physical Hazards- Occupational Safety and Health Act – 29 CFR 1910.44, Safety Color Code for Marking Physical Hazards."

### VI. COST ESTIMATE PREPARATION

#### A. General Requirements

1. The A/E shall be responsible for completing the design within the estimated construction contract price (construction budget). Any changes that may be necessary to bring construction costs within the available funds are not reimbursable unless the cost of proposed construction is affected by events beyond the A/E's control. The A/E shall devote sufficient time and attention to assure that the cost estimates are adequate and accurate. Cost estimates shall be submitted at the time as the drawing submittals.

2. Cost estimates shall include but not limited to the following: general conditions, site development, building cost, fixed equipment, construction management, and contingency funds as outlined in the estimate format below. Direct costs (labor, materials, equipment rentals, etc.) should be shown separately from indirect costs (overhead, profit, bonds, taxes, insurances, etc.)

3. All cost estimates shall be developed based on the Construction Specifications Institute (CSI) Documents MP-2-1) "MASTERFORMAT" sixteen divisions.

The A/E shall submit a cost with the drawing at each submittal. The estimate shall show the estimated cost of constructions that would be expected if bids were received from a construction contractor, on the same date as the submittal. The level of details for this estimate shall be consistent with the completeness of the drawing submitted. If a construction element is shown, it must be priced: if it shown in detail, it must be priced in detail. For detailed elements, "lump sum" or "allowances" will not be accepted.

#### B. Estimated Format

Pre-Design/Concepts Estimate: this is a lump sum budget estimate (square ft. cost) based on the SOW.

Schematic design sketches and documents and shall include the major components (i.e., site building, and fixed equipments). The estimate is to within 3 percent of the construction budget and shall included a 10 percent design contingency fund for any other special feature not included in the above heading but incorporated in the design of the facility.

Design Development Estimated: this estimated (square ft. costs) shall be based on design development drawing and documents and shall be prepared using the cost of major project components(i.e., site, building, plumbing, heating and air conditioning, electrical, outside utilities, fixed and movable equipment). The estimate is to be within 3 percent of the construction budget and shall include an 8 percent design contingency.

Intermediate Construction Document Estimates: This estimated shall be based on intermediate construction drawings and documents. It shall be prepared quantity takeoffs by CSI format for the complete project. The estimate shall be divided into the standard sixteen divisions. It should be recognized that the cost breakdown for electrical and mechanical feature will be commensurate with the design status. Lump-sum prices are to be avoided. The estimate must not exceed the construction budget and shall include a 5 percent design contingency fund. Special features costs incorporated in the facility design are to be included in the estimate as separated line items.

Final Construction Documents Estimate: This estimate shall be based on the final construction documents. No lump-sum figure shall be permitted. This estimated will be considered the "LBJTMC Estimate" after it has been reviewed and accepted by LBJTMC. The estimated shall not exceed the construction budget and shall not contain any design contingency.

## VII. SUBMISSION OF DRAWINGS, SPECIFICATION, AND COST ESTIMATES

### A. General Requirements for Submission of Drawing, Specifications, and Cost Estimates

1. The number of submittal stages and the number of copies required for each submittal are specified in the A/E contract or the A/E delivery order.
2. Technical specification shall conform to CSI format. The specifications shall be uniformly developed in all divisions and sections and shall thoroughly describe all materials, equipment, process, system, etc. Multiple volumes may

be used if necessary. Performance specification will not be allowed without specific approval of the CPOTR.

3. Construction document shall be coordinated with all furnishings, equipment, and communication systems.
4. Construction documents drawing shall be laid out and drafted in a manner that is suitable for reduction to ½ size sheet size ARCH 2, 12x18(350 x 547).
5. All construction documents shall be reviewed, signed, sealed, and dated by a professional architect or engineer with respect to their specific field of registration.
6. Provide large scale drawing of showers, toilet rooms, laboratories, utility corridors, mechanical rooms, and all other areas that are too congested to be clearly understood at a smaller scale.
7. Mechanical Documents
  - a. Provide the comments “Coordinated with architectural drawings for detailed information” on all drawings.
  - b. Coordinate site utility drawing with other disciplines.
  - c. Show quantities of air in CFM for each run or branch. This will aid the Testing, adjusting and balancing contractor in setting the dampers of balancing cocks to the proper quantities.
  - d. Provide a separated drawing for each of the following when the drawing scale is 1/8”/ft or less.
    - (1) Demolition
    - (2) Ductwork
    - (3) Piping (other than process piping)
    - (4) Process piping
    - (5) Plumbing (domestic water, waste, vent, gases, vacuum, compressed air, etc.)
    - (6) Fire protection
    - (7) Special systems
  - e. Provide riser diagrams for all systems including ductwork, domestic water, steam, heating and or chilled water, waste, drainage, vent, fire standpipe, and process piping. Each component shown on a riser shall also be shown in plan view. Provide cross identification.

- f. Equipment such as water meter, electric meter etc., piping, and valves to be furnished and installed by the utility company shall be shown and identified on the drawings. Delineate the division of work between the utility companies and the construction contractor.
- g. Control sequences for all systems shall be included.
- h. Schedules for all equipment shall be shown on the drawings.
- i. Calculations
  - (1) Calculations are to be a progressive refinement of the basic design until the final submission.
  - (2) All decisions, data sources, codes, etc., are to be identified.
  - (3) Each revised sheet can be cross out and have "REVISED" written on it.
  - (4) Calculation sheet shall have a minimum 1" binding border with the remaining borders at least 1/2" wide (Nothing shall be written in these borders).
  - (5) Each sheet shall be identified by the project name, date, and page number.
  - (6) All letters shall be legible and reproductions complete.
  - (7) Mechanical calculations are to include all systems and all equipment selection information about HVAC, plumbing, fire protection, and other special system.
  - (8) Block and room Loads
    - (a) Block load calculation shall be made for both heat loss and gain. The block loads shall be use to determine the size of the primary heating and cooling units for the building or the facility. Block loads occur and the quantity of these loads.
    - (b) Provide individual cooling, heating, and ventilation requirements for rooms. Include suggested equipment to meet these loads.
    - (c) The total of all the room loads will usually exceed the cooling block load for refrigerant equipment. Room or terminal unit loads are used for room or zone unit sizing.
    - (d) The calculation shall included riser diagrams, room layouts, pump and fan curves, equipment data, pipe and duct sizing, tank capacities and all pertinent data and sketches to completely clarify the design intent.
- j. Water, Sewer and Gas Data
  - (1) Provide fire hydrant flow test results with flow rates, static pressures, and residual pressure for existing hydrants within close proximity of the site. The local jurisdiction shall be notified and a letter secured

indicating that the local system is adequate to handle the proposed loads. If the existing water system is not large to handle the proposed loads then the design should include an upgrade that has been coordinated with all concerns. The cost estimate shall include the necessary costs to upgrade and extend the system to the site.

- (2) Provide the size and capacity of all gravity sewers; pumped sewers will not be allowed. The local jurisdiction shall be notified and a letter secured indicating that the local system is adequate handle the proposed loads. If the existing sewage system is not large enough to handle the proposed loads then the design should include an upgrade that has being coordinated with all concerns. Refer to the SSER for requirements on upgrading the system. The cost estimate shall include the necessary coast to upgrade and extend the system to the site.
- (3) Provide fixture unit factors for water, waste, and vent

k. Sketches and Hookups

- (1) Furnish rough sketches used to calculate duct and piping system layouts and sizing. Duct system include supply, return, exhaust, and special; systems. Piping system shall include: domestic cold and hot water, waste and vent, heating water, chilled water, ethylene glycol solutions, oxygen, vacuum, compressed air, refrigerant gas, nitrogen, and other special systems.
- (2) Furnish equipment piping hookups and details for installation of specials systems such as engine-generator sets, unit heaters, and steam for sterilizers, deionized water, and gases (air, oxygen, nitrous oxide, nitrogen, etc.).

l. Provide sizing of all tanks and service lines to and within buildings for gases and liquid such as propane, natural gas, fuel oil, oxygen, and water.

m. Furnish load data and information on equipment capacities. If the design is based on the use of existing equipment, demonstrate the adequacy of the existing equipment.

n. Bind the final calculation submittal. Include catalog information for all equipment proposed for the job. (All equipment proposed shall have three manufactures that can specified requirements)

## 8. Electrical Documents

- a. Provide the comment "See architectural drawings for additional information" on all drawings.
- b. Coordinate site utility drawing other disciplines.
- c. Provide a separated drawing for each of the following when the drawing scale 1:100 or less.
  - (1) Demolition
  - (2) Power
  - (3) Lighting
  - (4) Special systems
- d. Identify all circuits. Circuits requiring two or three pole protection shall be identified by one number only (not one number per pole).
- e. Identify grounded conductors, graphically or in schedules, similar to phase or neutral conductors. Do not rely on separate notes or specifications.
- f. Provide large scale drawings of equipment pads and electrical rooms.
- g. Show interrupting capacities for switchboards, motor control centers, and panel board schedules. In panel boards, separately identify each special single-pole load and each multi-pole load. Lighting and receptacle loads may be grounded in the scheduled.
- h. Provide riser diagrams for all systems. Provide a one line diagram of the incoming service and the secondary distribution system. Also show, in plan view, each component shown on the riser or the one line diagrams. Provide cross identification.
- i. Show and identify equipment to be furnished and installed but the utility company. Delineate the division of work between the utility company (or LBJTMC) and the construction contractor.
- j. Identify load requirements(kW, volts, phase) for each outlets such as motor, heating device, or special equipment schedules.
- k. Furnish calculation to support each design phase.
  - (1) Luminance calculation for lighting.
  - (2) Load calculation including voltage drops, short circuit and ground fault considerations. (In both preliminary and final load calculations, indicate connected loads and demand factors for each load category).
- l. Obtain available short circuit voltage and current data from local power company and included the information with the final load calculations.

- m. Furnish load data and information on equipment capacities. (If the design is based on the use of existing equipment, demonstrate adequacy of the existing equipment.)
- n. Bind the final calculation submittal. Include all equipments catalog information proposed for the jobs. All equipment shall have a minimum of three manufacturers that meet the specified requirements.

#### 9. Distribution of Submittal Documents

The A/E is to bind all drawings into correlated sets.

#### B. Pre-Design Submittal

This phase include all works by the A/E before the Concepts Phase. It shall include the following applicable tasks.

1. Program Verification: Review and compare the PJD, POR, SSER, SOS, contract, and environmental criteria. Summarize the review in a written report, and list all questions and unresolved issues.
2. Site Analysis: Prepared a rough sketch to show the character of the site and the surrounding area. The sketch shall show all observations, site condition and environmental issues that will affect the project development.
  - (a) Prepared the Site Analysis using the site survey and local map, city map, county map, and or United States Geological Survey map, as required. Show general topographic survey information such as boundaries, grades, roads, walks, water features, structures, tree masses, major utility lines, and property lines.
  - (b) Prepared additional sketches or overlays, at a scale of 1"=80' or smaller, to show condition outside the survey area that will affect the project development.
3. Survey: Review and document existing conditions to establish the basis for work during the design stages.
  - (a) Obtain and filed verify Record Drawings or other drawings of existing structures, if available.
    1. Investigate and document the condition of existing structures during the field survey.
    2. Make or correct record drawings (include photographs if needed).
  - (b) Document in a pre-design survey report all finding regarding the conditions of the existing structures or system in a format the can be reproduced readily.

4. Report Format: Bind results in a booklet with a tab or each of the above items.
5. Refer to Appendix A for Submission Checklist.

### C. Concepts Submittal

The purpose of concepts is to investigate alternative site layouts, building organizations, and building massing arrangements.

- (1) Conduct work session with the American Samoa Government and the client agencies. During the work session the A/E is to note the client agencies' concern, discuss the interdepartmental relationships, review the site constraints, and the PJD and POR program, and departmental concern among the A/E, the client agencies, and LBJTMC.
- (2) Site Layout
  - a. Examine alternative schemes for site layouts. The alternatives should include major site features such as buildings, building entrances, recreational areas, yards, walks, drives, loading dock, emergency drop-off, emergency entrance, fuel storage tanks, staff and visitors parking, etc. unless directed otherwise, develop three schemes.
  - b. Show location of existing utility services, prospective connection methods, and access routes. Coordinate with the building concepts described below.
- (3) Incorporate conceptual design activities with the site planning work described above. Examine the facility building plan and massing arrangement alternatives. Space planning shall be done at DGA block scale. Identify alternative for foundation, structural, mechanical systems and their impact on architectural features. Show alternative for foundations, framing, and building system distribution spaces in simple wall and building sections. Integrate concepts value engineering and energy conservation recommendations.
- (4) Building Organization and massing

The building concepts are to show the most desirable general organization of the project, both internally and on the site.

  - a. Provide the following
    - (1) Interdepartmental proximity diagrams.
    - (2) Existing functional diagram
    - (3) Locations and types of building access.
    - (4) Other drawings as directed
  - b. Present at least three general plan alternative concepts, one for each site layout.

Provide supporting alternative sub concepts for framing, vertical development, mechanical systems, and electrical systems. Provide preliminary cost data, including operation and maintenance cost implications for each alternative presented.

- c. Provide a cost estimated: Refer to Chapter VI.
- d. Provide a brief written analysis of all planning and systems concepts and recommend a general overall approach to the next phase, schematics design. Carefully consider consequences for all major building service systems.

(5) Refer to Appendix A for Submission Check list.

(6) After the Concepts Submittal review make a record drawing of the final Site Layout and Building organization and Massing plan and submit.

#### D. Schematic Design Submittal

The purpose of the schematic design to establish the size, shape general construction (framing System and building envelope), general mechanical and electrical systems, and room by room Layout. This submittal represents approximately 10 percent of the design phase.

- (1) Integrate all preceding design efforts and all design –related special studies.
- (2) Conduct work session with LBJTMC and the client agencies. Meet with the assigned staff to review the circulation with the departments, the types of spaces, and the interdepartmental relationship developed in the concepts phase. The work session are intended to develop a level of understanding of circulation and type of spaces within the departments, and special concern the clients agencies may have concerning the departments.
- (3) Refine the approved conceptual design. Establish the preferred building scheme, integrating a workable structure. Develop the floor plan to include all rooms listed in the POR. Define all general assemblies, material, and floor plans to show all walls with double lines. Show general building dimensions (horizontal and vertical).
- (4) Verify capacity of scheme to accommodate all supporting systems and equipment. Establish general concepts of type, location, and distribution of mechanical and electrical systems. Provide preliminary calculations for structural, mechanical, and electrical systems.

(5) Specific Requirements

- a. Provide a narrative of the design though process.
- b. Provide an outline technical specification.
- c. Note the name or function, space identification number(refer IV.B) and the net area in each individual room or space.
- d. Provide a cost estimate: refer to chapter VI

Drawings

- (1) Provide plans, elevation and building sections at 1/8"=1'-0' minimum. Provide typical wall sections at a large scale.
- (2) Provide a site plan, floor plans, a roof plan, elevation, and longitudinal and transverse sections.
- (3) Verify that each space in the POR space schedule and POR functional diagrams are shown on the drawings.
- (4) Show entrances, circulation areas, stairs, elevators, mechanical equipment space, electrical equipment, toilet rooms, stacks, and wire closets.
- (5) Show all required smoke and or fire partitions on the floor plans.
- (6) Show typical window arrangement and exterior materials.
- (7) Provide sections through the building in both the longitudinal and transverse direction. All major rooms are to be shown and labeled(abbreviated if necessary), with floor to floor dimensions noted.
- (8) Designate the floor that is approximately on the same level as the main entrance as the "first floor". If the site slope downward from the main entrance area, and one or more secondary entrances are below the first floor, designate that level the "ground floor". Floors below the grade are to be designated as "basements"
- (9) Indicate plan or possible future building expansions by dotted outlines on the plans and elevations. They shall be noted with the words "future expansion"
- (10) Mechanical
  - a. Indicate chilled water loads and location for connection to existing chilled water system. Indicate location of new chilled water air handlers.
- (11) Electrical
  - a. Indicate space allotments for equipments/mechanical equipment loads

E. Design Development Submittal

The purpose of the design development (DD) submittal is to describe the size and character of the Project in detail from the owners point of view and confirm that all engineering requirements can be accommodate in the final design. This submittal constitutes approximately 35 percent of the design phase.

1. Integrate all preceding design efforts and all design related special studies.
2. Refined the approved schematic design documents. All interior and exterior systems and materials that the medical staff and patients will use, encounter, see, hear, or be dependent on for their safety must be identified.
3. Provide general and detailed floor plans, exterior elevations, and major building sections at 1/8"="0". Provide all majors types of wall sections at a larger scale.
4. Conduct work sessions with the LBJTMC and the client agencies.
  - (a) Meet wit the client agencies to develop detailed locations and connections for all related Groups 1 and Group 2 equipment, telephone equipment, layout of cabinets elevations(door, drawers, height, shelves, etc.) ,function of door hardware finishes, location of power and communication requirements, location and type of lighting refine room and departmental circulation etc.
  - (b) Revised architectural floor plans and interior elevations at 1/4"=1"-0.
  - (c) Meet with client agencies for final approval of each area or department before completing the DD submittal.
5. Provide all design specialty services needed for a complete facility design including radiation shielding , incineration, trash disposal, medical gas storage and dispensing(includes dental), and all storage and internal transportation devices.
6. Show calculations for anticipated energy usage that comply with annual Energy use Budget.
7. Provide project outline specifications in development draft form. The section are to be formatted into three parts:
  - a. Preliminary statement of all major systems.
  - b. Materials
  - c. Type of major equipment components.
8. Provide a Cost Estimate: Refer to chapter VI
9. Site plan: Provide a well articulated site plan showing the location and size of the facility and facility-support systems. The following note shall

appear on the site plan. "BASE ON THE TOPOGRAPHIC SURVEY DATED\_\_\_\_\_".

10. Floor plans (Provide the following information)

- (a) Floor plans shall have the following notes: BASE ON STATEMENT OF WORD DATED\_\_\_\_\_ AND ON SCHEMATIC DRAWINGS APPROVED\_\_\_\_\_".
- (b) Floor plan indicates wall thickness, door swings, and door sizes.
- (c) Each room or space shall be identified by name (abbreviated when necessary) and number. Refer to IV.C for room name and number requirements.
- (d) Material of all partitions shall be indicated by either symbol or note to agree with those materials described in the supporting data.
- (e) Floor plans shall include section lines location of longitudinal and transverse sections.
- (f) Precisely locate and size vertical structural members and rough size horizontal members to assure that there are no conflicts with other systems.

11. Fire Protection: Provide drawings showing all protection features for the project site and for each floor of the building reflecting NFPA 101: Life Safety Code "requirement and a written description of assemblies and materials. Plans are to be 1/8"=1'0"

12. Elevation: Provide elevation with the major features and material noted directly on the elevations. This shall be in generalities such as brick, stone granite, architectural cast concrete, bronze, aluminum, etc. Terminology and materials must agree with the supporting date submitted.

13. Longitudinal and Transverse Section: Provide at least one longitudinal and one transverse section through the major portion of the building shall be included. All major rooms expose by the section shall be shown and identified by name. Complete floor to floor dimension from the lowest floor to the roof shall be given. Ceiling heights throughout the building shall be indicated.

14. Wall Sections: Provide one wall section cut on line through windows and another on a line through the wall proper. A partial elevation and plan section shall be on the same sheet at the same scale. This is required for all substantial variation in wall design. The purpose of these sections is to delineate the fundamental concepts of the proposed exterior wall design.

15. Design of Special Areas: Provide preliminary design sketches, including 1/4"=1'-0" scale plans, interior elevation, reflected ceiling plans of lobbies, auditorium, kitchens, laboratories, and other areas which are to be given special architectural treatment. Floor plans at 1/4"=1'-0 scale shall be started during this phase. They shall show case work and equipment layouts.
16. Possible future expansion shall be indicated by dotted outlines on the plans and elevations. It shall be noted with the words "future expansion".
17. Perspective CAD Sketch and Rendered Perspective: When required by the A/E contract, a line perspective sketch and a rendered perspective shall be submitted. A block model of the building may be required to be the contract.
  - (a) The perspective CAD sketch shall show the desired appearance of the building. The sketch shall be approved by the CPO before the rendered perspective is begun.
  - (b) The A/E shall proceed with the rendering after approval of the DD drawings and the perspective sketch. The rendering shall be done by a professional renderer shall produce and artistic work of high quality observing the following requirements:
    - 1- Medium: Rendering shall be in color suitable for photographic reproduction. The environment of the building as it actually exists or will exist after completion of construction shall be portrayed. Emphasis shall be given to the building instead of its surroundings.
    - 2- Scale and Materials Indication: Human figures shall be placed at or near the main entrance to establish the scale of the building. The extent to which the materials are indicated may be left to the A/E's judgement.
    - 3- Other: The rendering shall be a minimum of 20x16 inches exclusive of mat. It shall be provided with mat, frame and non reflective glass. Color photographic reproductions of the rendering may be required by the A/E contract.
18. Coordinated design development with any value engineering proposal and energy conservation recommendations.
19. Plumbing (Provide the following information)
  - (a) Location and size of existing utilities and service connection to building(s).
  - (b) Location and arrangements of all major equipments.

- (c) Preliminary calculations for determining sizes and types of plumbing, process equipment and systems.
  - (d) Plumbing layout of typical toilet rooms including drainage and venting systems.
  - (e) Schematic diagrams showing completed drainage, venting, and water systems. Include process services, if any.
20. Air Conditioning: Particular attention should be given to insure that the layout suit the modular space arrangement or the building(Provide the following information)
- (a) Location and arrangement of all major equipment.
  - (b) Block load air conditioning calculations for peak time of day.
  - (c) Economic analysis to show comparative costs and recommendation for refrigeration plant.
  - (d) Economic justification should be provided if a high velocity duct distribution system is proposed.
  - (e) Single line layout of ventilating and air conditioning duct work to indicate number of zones, types of system (i.e. high or low pressure, multi zone etc.) and extent of each system. Elevator machine room ventilation shall be included.
  - (f) Complete sequence of operation and schematic temperature control diagrams.
  - (g) Schematic flow diagrams for air handling equipment, condensing water, and chilled water.
  - (h) Air outlet location for typical areas.
  - (i) Location of cooling tower including a method for screening from view.
  - (j) Room names and numbers.
21. Electrical (provide the following information)
- (a) Location of services and major equipment components.
  - (b) Lighting layouts areas with supporting preliminary calculations.
  - (c) Fire detection and alarm system devices.
  - (d) One line of diagram of power distribution scheme.
  - (e) Outline specification(see section V)
  - (f) Room names and numbers
22. Provide cut sheets for proposed fixtures, receptacles, etc.
23. Refer to Appendix A for submission checklist.

## F. Construction Document Submittals.

### 1. General

The Construction Documents(CD) drawing and related documents are submitted for review and approval in three stages.

65% CD SUBMITTAL

100% CD SUBMITTAL

FINAL CD SUBMITTAL

(a) Drawing Preparation : Each sheet of drawing must show the name, number, and location of the project.

(b) Component: The drawing will include:

- (1) A cover or index sheet
- (2) Site survey and soil boring data
- (3) Site Utilities
- (4) Site work
- (5) Architectural Floor and Roof Plans ( A separate plan must be drawn for each floor, basement, mezzanine and penthouse level).
- (6) Exterior Elevations
- (7) Longitudinal and Transverse Building Sections
- (8) Reflecting Ceiling Plans
- (9) Architectural schedules (Finish, Door , window etc.)
- (10) Exterior and interior details
- (11) Structural drawing, schedules and details
- (12) Mechanical drawing, schedules and details
- (13) Electrical drawing, schedules and details
- (14) Landscaping and Planting Drawings
- (15) Additional drawing (e.g Demolition ,kitchen Equipment, etc.) as warranted by the project.

(c) Elevation and Sections:

- (1) Scale shall be the same as used for the floor plans.
- (2) The extent of each building materials used shall be indicated clearly on the elevations.
- (3) Cutting Plane for Longitudinal and Transverse section :  
A place shall be chosen which cuts through the most important spaces and reveals the maximum number of different construction condition. In addition to complete sections, others complete or fragmentary sections need for clarity shall be shown. The planes through which the longitudinal and transverse sections have been taken shall be indicated on the related floor plans.

- (d) Exterior Details: Provide all details necessary to explain fully the exterior architectural work and how it connects to the structural work. Head, jamb and sill details of exterior door or window opening are required as well as exterior wall sections at openings and between openings. Other necessary architectural features shall also be detailed.
- (e) Wall Sections: Complete wall sections of all unique condition are required. They shall show each type of wall construction from the top member to the lowest floor level(including the footing).
  - (1) Anchor details for stone, brick and other masonry shall be checked for structural adequacy by structural engineers.
  - (2) Section shall be developed to the extent necessary to show roofing and flashing details under all conditions.
- (f) Details: Details shall be drawn at a scale sufficient to indicate the desired arrangements of materials.
  - (1) Standard details may be used as an integral part of the drawings; however they must be tailored to fit the specific project.
  - (2) In case of differences between small and large scale drawings, the large scale drawing shall govern.
  - (3) All details shall be appropriately cross-referenced to the plans. When a scale drawing of a major elements is made, it shall be referenced on the floor plans.
- (g) Schedules: Since construction contract clauses of the specifications state that schedules on drawing shall take precedence over any conflict notations on the drawings, it is important that schedules be accurately prepared to ensure that the desired finishes and materials are obtained. The following schedules shall be provided: Interior finish schedule, Interior and Exterior color schedule, Door schedule, Window schedule, Equipment schedule, and schedule to supplement detail drawings.
- (h) Materials: materials legend showing cross hatching examples and corresponding materials shall be provided.
  - (1) On areas of drawing where cross hatching is needed to indicate materials, only enough area to show the type and extent of the materials need be cross hatched.

- (2) Where cross hatching is used to indicated the extent or scope of new work (as opposed to existing work), the entire area of the new work shall be cross hatched.
- (i) General Notes; General notes for each category of drawing shall be place on the first sheet of each series, preferably above the title block. These notes should be kept to a minimum. They may be referred to on other sheets in the same or other series are necessary without repetition. Notes should be clear, concise, and non repetitive. They should complement and amplify the drawing and specifications.
  - (1) Notes shall be directed only to the General Contractor. The A/E shall not put any notation or statement on the drawing indicting or designating portions of the work to be done by a specific contractor or trade.
  - (2) Consistency of Nomenclature: In order to guard against conflicts over ambiguous terms and statement, the term used in drawing and specifications shall be identical. The A/E shall refer to the POR and design data for proper terms for rooms, spaces or portion of structures.
- (j) Coordination of Construction Documents: All construction documents shall be coordinated to ensure coverage and to eliminate contradictions. Special care shall be taken to coordinate the architectural drawings and specifications with the structural, mechanical and electrical drawings and specifications.
- (k) Accessibility Mechanical and Electrical Equipments: The A/E shall ensure that the design is coordinate to provide clearance around all machines and equipment for the installation and removal of parts. Door or window openings, removal panels, corridor sizes and location and floor or roof load capacities shall be design so that the equipment can be removed without structural changes to the building.
  - (1) Refer to Appendix A for Submission Check List.

## 2. 65 Percent Construction Document Submittal:

General: the 65 percent construction documents shall be in accordance with the approved Design Development Submittal, the approved POR and the written documents made during the Design Development Review. They are then reviewed by LBJTMC to guard

against scope expansion or change in design or materials that may increase cost above the authorized funds.

- a. Drawing and specifications must be defined the size, configuration, materials and complexity of construction; the type of quantity of Group 1 equipment; and scope and complexity of all systems. Provide major groups of construction details, schedules and diagrams and a written report on building construction cost and energy budget status. Identify all systems for which performance specifications are being considered.

Drawing shall be at final work drawing scale. Each detail section or elevation shall be identified by a title. All drawings submitted shall be identified by a drawing number, date and identification of submittal.

Drawings not specifically required to be complete at this stage but are required to prepared a detailed cost estimated may be submitted in a partially complete state.

- b. Landscape Plan:
  - (1) The A/E is responsible for retaining a qualified landscape, when required by the SOW, to develop a landscape plan for submission.
- c. Floor Plans: A plan of each floor level at 1/8"=1'-0 scale is required. Plans shall be complete, showing materials, dimension, rooms names and numbers, finishes, ceiling heights, door types, materials and sizes and any fire retardant walls, partition and doors. Those area which are complex and or required fixed fixture or equipment layout shall be drawn at 1/4"=1'-0 'scale.
- d. Roof Plans: A complete roof plan, including details of flashing and drains, is required.
  - (1) Roofs shall be sloped at not less than 3' per foot. Patterns of slope to drains shall be shown on the roof plan.

- (2) Elevation showing high and low points on the roof shall be included on the drawings.
- e. Elevation Section: A complete elevation of each side of the building, at least one complete longitudinal section and one complete transverse section through the building are required. The elevation section shall include notes to indicate materials that are specified.
- f. Exterior Wall Details: Atypical wall section for each type of wall construction is required. Wall section must be complete and show materials, dimension, structural bonding and anchoring systems. Windows, door and flashings.
- (1) If architectural cast concrete (stone) panels are used all reinforcing required for a typical panels shall be indicated.
  - (2) Provide 3"=1'0" scale details of all anchor required to secure the exterior facing to the structure and the header, jamb and sill conditions for all opening in exterior walls.
- g. Interior Details:
- (1) Interior elevation are required for those spaces that required fixed fixture or equipments, or where elevations are necessary to show the extent of wall material. Elevation shall be drawn at 1/4"=1'-0: scale and shall indicate the design, materials, and major dimensions.
  - (2) Partial floor plans at 1/4"=1'-0" scale and shall indicated the design, materials, and major dimensions.
  - (3) Reflected ceiling plans shall show the extent of materials and the coordination of architectural, mechanical and electrical items.
  - (4) Explanatory section at 1/2"-0", 1"-0. Or 3"=1'-0" scale should be included where necessary to show the design of an element.

(5) The drawings shall show all necessary details for special areas shown on the DD design. There shall be sufficient details to approval by agency.

h. Elevators, Escalator, Dumbwaiters and Materials

Handling Equipment: the following items are required:

- (1) Plans at  $\frac{1}{4}''=1'-0''$  scale of elevator (showing floor served); typical floors in blind portions of hoist way, if any: elevators pits: secondary levels, and machine rooms having access. Plans shall include platform size, counter weight space, door space and clearance dimensions.
- (2) Section at  $\frac{1}{4}''=1'-0''$  scale through elevator hoist ways, pits, secondary levels, and machine room (run dimension shall also be shown).
- (3) Detail showing elevator hoist way vents when serving four or more floors.
- (4) Details of trolley beams, trap doors, or other provision for removal of components of elevator equipment from elevator machine rooms.
- (5) Details of supports for elevator machine beams, elevator dead end hitch beams and escalator trusses ( Elevator machine and hitch beams shall rest on their support beams rather than frame into the support beams.
- (6) Elevation of elevator entrances at typical and non typical floor (signal fixtures, elevation of elevator starters, indicator and control panel shall be shown).
- (7) Details of special elevator cabs and special hoist way entrances where applicable.
- (8) Plans and section showing clearances at  $\frac{1}{4}''=1'-0''$  for escalator, dumbwaiters, adjustable loading ramps, scales and conveyors.
- (9) Diagrammatic layout of materials handling systems.
- (10) Details at appropriate scale of power operated doors (pedestrian and vehicular), control systems and space for door operators.

i. Schedules: It is most important that they be closely coordinated with project specification and that the nomenclature is identical. The following schedules are required.

(1) Interior Finish Schedule: List every material which is exposed in each space (including unfinished walls or undersides of structural slabs). The word "exposed" shall not be used instead use the name of the material. For each space this schedule shall identify the room number, room name, substrate, materials and finish of floor, base each wall (i.e. north, east, south and west) ceiling height and space remarks.

(2) Interior and Exterior Color Schedule (place on the last sheet in the series of schedule sheets): this schedule shall identify the room name/number, materials, color and other pertinent information. Colors, textures and finishes of specific manufacturers may be used in this schedule or the finish schedule. A note shall be included stating that a manufacturer's name is not intended to limit competition.

(3) Door Schedule: Include all doors by door number, room number, frame materials and details, door materials and elevation, size of door, glazing and other openings and hardware set. The schedule shall refer to details drawings of jambs and head conditions.

(4) Window Schedule: indicate all window sizes, location of opening units and type of glazing used in each window.

J. Interior Perspective CAD Sketch

(1) General: A preliminary line perspective depicting a proposed typical interior view perspective shall be submitted, when required by the A/E contract.

(2) the interior perspective CAD sketch shall be submitted with the 65 percent construction documents. The interior perspective sketch will clearly define the proposed interior

material and overall quality of the major public interior spaces. An eye level perspective of the main public lobby/waiting area, reception desk and major pedestrian circulation routes are the preferred perspective views. The sketches shall be approved by the Contracting Officer before the rendered perspective are developed.

- k. Preliminary Color boards: Color boards will submitted in the specified quantities in a standard 280 c215mm three ring binder when required by A/E contract. Samples will be presented of all major building interior and exterior finishes. Fold outs may be up to 36 x24 inches a long as the refold within the standard binder configuration. Actual materials samples shall be displayed showing color, texture, pattern, finish, thickness etc., for all appearances related items where choices exists. These samples shall be large enough to indicate true pattern. Samples shall be organizes by colors schemes with a separate sample group for each scheme. The scheme shall be coordinated with elevation for the exterior and by rooms names/numbers shown on the architectural floor plans for the interior. Materials and colors shall be labeled by manufactures, source and product description for color a pattern purposes.
- l. Preliminary Specification: Specification shall be prepared by the A/E to substantiated form, arrangement, and procedures for development of all sections. The preliminary specifications shall include all technical sections prepared with headings that illustrate broad scope contents. Specification shall be complete, edited for project, and in final format.
- m. Provide a cost estimate: Refer to Chapter VI
- n. Mechanical:
  - (1) All system details, equipment piping hookup details, piping riser diagrams, controls and equipment schedules shall be shown. In addition to the drawings, calculation and specification, the following shall be included.
  - (2) Plumbing:
    - (a) Layouts of typical toilet rooms and location of all plumbing equipments in mechanical equipment rooms.
    - (b) Layout of special spaces such as kill tanks rooms and elevator pump rooms.
    - (c) Typical riser diagrams for water, soil, waste and vent piping

- (d) System supply piping layout for all standpipe hose systems and sprinkler systems showing hazards and zoning.
- (e) Layout of all fuel systems such as propane, natural gas, fuel oils and solid fuels showing location of storage tanks or other storage areas, all safety and fire precautions.
- (f) Layouts of all medical and non medical gas and other systems such as: oxygen, nitrous oxide, compressed air, vacuum, nitrogen, hydrogen, acetylene, argon, etc., and other systems including softened water, deionized water, laboratory water, non portable water, feed water, ethylene glycol solution and their feed piping tank age and other appurtenances as required.

(3) Air Conditioning:

- (a) Flow diagrams for chilled water, condenser water, refrigerant with typical riser diagrams for chilled water.
- (b) Preliminary sequences of operation and automatic temperature control diagram.
- (c) Ductwork layout for typical fan rooms and typical areas.
- (d) Equipment rooms layout developed to extent the showing clearances for access and showing trolley beams provided for maintenance.
- (e) Preliminary riser diagrams and equipment schedules.
- (f) Calculations, riser diagrams, and special systems.
- (g) Preliminary load calculations.

(4) Electrical

- (a) Lighting layout for all areas with final lighting calculations.
- (b) Fixture cuts (not required if isometrics are shown on drawing).
- (c) Equipment rooms layouts to show clearances and accessibility.
- (d) Preliminary riser diagrams and panel schedules.
- (e) Routine outlets and equipments with associated branch circuit wiring.
- (f) Preliminary loads calculations.

3. 100 Percent Construction Documents Submittal:

- (a) General: when contract documents are 100% complete they are submitted to the agency for review. This includes all architectural and engineering drawings and specification

necessary for bidding and requires calculations. All components shall be accurate and coordinate among disciplines.

- (b) Cover Sheet and Index: A cover sheet and index sheet of same size as the drawing must be provided. The A/E shall provide covers with an approved design for the drawings and specification. All drawings in the 100% documents shall be listed by numbers, title and in numerical sequence. Titles and numbers listed in the index must be identical to those shown in each title block.
- (c) Topographic Survey: this survey, when required shall be inserted as the first drawing following the index sheet.
- (d) Site and Grading plans; these plans show all of the site and must establish grading and project limits. They must show approach roads, relationship to other buildings on the site, etc. Where practical, the building on the site plan should be oriented the same as the floor plans so that the entrance faces the same side of the sheet on all plans.
  - (1) Recommended scales for the submittal are 1/16"=1'-0" to 1"=40' provided that uniform sheet size can be maintained. Areas of complex design shall be shown in details, 1/16"=1'-0". These scales of the topographic or boundary survey shall be used if it permits and adequate explanation of the work.
  - (2) Multiple Building: For project comprising several buildings and road system, the site plan and the grading plan may be divided into sectional sheets to keep within the established sheet size.
  - (3) Road Curve Data: Road curve data, vertical curve data, and other related elements concerning the locations and layout of the work shall be shown on the site plan.
  - (4) Contours and Grading: the contour of existing topography, new grading and other data concerning the grading shall be shown whenever necessary to explain detail of grading or changes in grade.
  - (5) Demolition and Site Clearing; If this cannot be shown on the site plan, a separate plan shall be furnished. The extent of the work shall be indicated and noted, including

removal of existing buildings, filling of old foundations, removal of trees, erosion control, etc.

(6) Details shall be incorporated on the drawings;

(e) Additional Specific Requirements for All Drawings:

(1) Plans; If floor plans are drawn at  $1/8"=1'-0"$  scale plans are required to show spaces that need special architectural treatment.

(2) Interior Elevations: These are generally submitted at  $1/4"=1'-0"$  scale.

(3) Details; Portion of interior plans and elevations may need to be enlarged to  $1/2"=1'-0"$  or  $3/4"=1'-0"$  scale to indicate the contract requirements adequately. Window and door frame details shall be drawn at  $1"=1'-0"$  or  $3/4"=1'-0"$  scale.

(4) Toilets: If floor plans are  $1/8"=1'-0"$  scale or smaller, additional toilet plans shall be furnished at  $1/4"=1'-0"$  scale to indicate fixture enclosure location and provide other necessary information. Toilet room elevations are required only when all necessary information cannot be shown on the plans.

(5) Stairs: Stair shafts; be laid out fully at  $1/4"=1'-0"$  scale. All dimension and necessary enlarged details shall be provided.

(f) Building Sign: If permanent building sign is required, a spacing diagram and details for the title letters in the sign shall be included.

Last pages

## IX. CONSTRUCTION ADMINISTRATION

The section will include in a future updated of the A/E guide.

## X. APPENDIX

A. Submission Check List

B. A/E Sheets

C. Standard Title Block

g. Construction Sign: The layout and sign information (provided by LBJTMC) shall be approved by LBJTMC. The construction sign location shall be shown on the site plan. The layout and lettering details of this sign shall be on the plans. The A/E may include the names of the principal consultants.

h. Specifications: Complete specifications shall be prepared or submittal to the Contracting Officer. Specifications shall be complete, edited for the project, edited for the project, and in final format.

i. Provide a cost estimate: Refer to Chapter VI.

j. Final Exterior and Interior Perspective Renderings: When required by the A/E contract and upon approval of the preliminary exterior and interior perspective sketches, the A/E shall proceed with final renderings. The renderings shall be done by a professional who shall produce a graphic work of high quality observing the following requirements:

(1) Renderings shall be in color and in any medium suitable for photographic reproduction.

(2) The original color renderings and a specified number of color copies will be required.

(3) The exterior perspective rendering shall have a matted overall dimension of 30 x 20 mm. the framed dimensions will be 31 x 21 mm. Both renderings will be mounted under glare reducing glass surrounded by a good quality in 1 inch minimum flat top black metal frame.

(4) Two 51 x 51 mm color slides of the final renderings shall also be submitted with the final framed renderings.

k. Final Color Boards: All changes resulting from the review of the preliminary color boards shall be incorporated in the 100 percent submission. This submission shall be complete with all originally approved and new materials presented in a single revised package.

l. Mechanical:

(1) Drawings complete.

(2) Final calculations including all HVAC, plubing, fire protection, and special purpose calculations. HVAC calculations shall include:

(a) Final block loads for heating, cooling, and ventilating.

(b) Individual room loads.

(c) Proposed equipment selection with model number, pump curves, and fan curves with selections indicated.

(d) Fixture unit calculations and all sewer invert elevations.

m. Electrical:

(1) Drawing complete.

(2) Final load calculations

4. Final Construction Document Submittal:

Provide the following for review and approval:

a. Complete construction documents.

(1) Technical specifications – computer disks in Work format.

(2) Drawings – Full-size transparencies and computer disks or CD's in Auto CAD format.

b. Provide a cost estimate: Refer to Chapter VI.

c. Copies of all engineering calculations including final energy budge status.

d. Formally concluded project review comment file.

e. Copies of all other reports and studies required by this contract

f. Update the space Comparison Report as prescribed in Appendix "C"

All written LBJTMC review comments shall be resolved and incorporated. The updated drawings and specifications will become the final construction documents. These documents shall be signed, sealed, and dated by the professional architect or engineer with respect to the specific field of registration.

The original tracings or film base reproducible mylars shall be submitted to LBJTMC for use in bidding and contracting. If reproducible are to be used, a

sample must be submitted for approval. Tracings or reproducible not capable of producing clear prints will be rejected.

#### G. American Samoa Government Review Comments

1. At the completion of each phase, the A/E shall submit the required materials and documents for review. Reviews shall be for overall design concept and adherence to the SOS and previously approved submissions. After receiving complete submittal, including the "Certified Submission Checklist" for the respective submittal phase, and verification by the CPOTR that the submission is complete, the review period will start. Written comments will be returned to the A/E as stipulated in the A/E contract.
2. The American Samoa Government reviews is not intended to provide a complete or detailed check of all drawings. It does not in any way relieve the A/E of the responsibility for checking all work; verifying compliance with codes, standards, and SOS; and producing a complete, coordinated set of documents.
3. After review of any submittal, CPOTR may require changes to the drawings. The A/E shall make these changes before completion of the next submittal and is responsible for the follow-through on each drawing of all comments made on a submittal.
4. The A/E shall submit a written response to the American Samoa Government review comments after each submittal or other documents. The response shall address each comment. Comments requiring additional details, sections, notes, or cross references to make the drawings more understandable shall be incorporated. If for any reason the A/E believes that a comment cannot be complied with, the A/E shall explain this in a written response.
5. The A/E shall not proceed to the next phase until written approval or approval contingent upon the noted changes is received from CPOTR.

#### VIII. BIDDING

##### A. Printing and Distribution

Print and distribute the Bidding Documents (or amendments, when applicable) to the Plan Rooms in the area and to prospective bidders as directed by the CPO. The bidding documents should be numbered and a log

maintained to show which bidder or plan room received what numbered bid documents. The direction will be by telephone from the CPO with a follow up letter. The A/E does not accept deposits. All prospective bidders who visit or call the A/E shall be advised to write or call the CPO to request the bidding documents. The CPO will advise the prospective bidder about the deposit and advise the A/E to distribute documents.

- (1) The numbers of set to be printed and distributed will be determined during negotiations.
- (2) In the event perspective bidders call the A/E for interpretation of the plans and specifications (technical question) or contractual questions, the A/E shall refer the bidder to the CPOTR or CPO. If the interpretation is considered is pertinent to the project, the necessary amendment shall be prepared by the A/E and issued by the CPO. If the interpretation required drawings and specification changes, the A/E shall complete and furnish them to the CPO (If the work involved by the A/E was due to A/E error, this tasks shall be accomplished by the A/E at no cost, including mailing of amendment).
- (3) Notify the CPO in writing that the solicitation documents have been mailed to respective bidders. This written notification shall be furnished with seven (7) calendar days of the mailing. The notification shall include the name and address of contractors and the date that the solicitations shall include the name and address of contractors and the date that the solicitations were mailed. The mailing date shall be the date directed by the CPO.

## B. Pre Bid Conference

If a pre-bid conference is held, the A/E shall attend. He shall take notes and furnish a written report of items discussed. This written report shall be furnished to the CPO within seven (7) calendar days after the pre bid conference.

### c. Perform Post Bid Analysis

Final cost estimates that are over or under the apparent low responsive bid by more than 15% will require post bid analysis by the A/E to determine the reasons for the variance. The A/E shall submit a written response to the CPO within seven (7) days after date of request. The response shall identify specific areas of variances and the reason for the variance. The response shall include a recommendation to either award or reject the bid with full rationale to support the recommendation.

