

## **1. TERMS AND CONDITIONS**

These general terms and conditions applicable to the SAMS construction are being attached to, and by this reference incorporated in, that certain Purchase and Sale Contract ("Agreement") between the Secretary of the Air Force (the "Secretary") and SAMS Venture LLC (the "Developer"). As this Agreement is between the Developer and the Secretary, the following terms and conditions shall also be included in the construction contract with the Contractor, as that term is defined in the Purchase and Sales Contract.

### **1.1 PROVISIONS**

#### **1.1.1 Permits and Responsibilities:**

(a) The Developer shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the Developer's work.

(b) The Developer shall be responsible for all damages to persons or property that occur as a result of the Developer's fault or negligence. The Developer shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work, which may have been accepted under the contract.

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

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

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

#### **1.1.2 Performance, Payment and Warranty Bonding:**

(a) Construction bonding is required. No construction shall begin until the Contractor retained by the Developer has provided the Government with a performance and payment bond issued by a corporate surety reasonably satisfactory to the Government in all respects. The performance and payment bond must run to the Government and the financial institution, which has issued a commitment to the business arrangement for a construction loan to finance the cost of construction of the project. The commitment must require that the performance and payment bond be delivered to the lender before it will make any advances. The loan with the lender must actually close in accordance with its commitment. Such performance

and payment bonds must be acceptable to the lender, be in the amount of the entire cost of construction of the project as the cost of construction is stipulated in the construction contract between the Developer and its general contractor, and guarantee the performance of the contract for the construction of the project in accordance with the approved final development plans and specifications for the project.

(b) Performance & Payment Bonds. The penal sum of such bonds will be as follows:

(1) Performance Bonds. The penal amount of performance bonds shall be 100% of the original construction price, unless the Government Representative determines that a lesser amount would be adequate for the protection of the Government.

(2) Payment Bonds. The penal amount of payment bonds shall equal: (1) Fifty percent (50%) of the contract price if the contract price is not more than \$1 million; (2) Forty percent (40%) of the contract price if the contract price is more than \$1 million but not more than \$5 million; or (3) \$2.5 million if the contract price is more than \$5 million.

Warranty Bond: Warranty bonding is required. The Contractor retained by the Developer shall be required to warrant that the construction and other work performed under the Agreement conforms to the requirements of the final development plans and specifications for the project and is free of any defect in equipment, material, design or workmanship performed by the Developer or any subcontractor at any tier. The warranty bond shall continue for a period of two years from the completion of the entire project. Performance of the warranty shall be secured by a corporate surety reasonably acceptable to the Government or by insurance in an amount not less than two million dollars (\$2,000,000) and in such form as is reasonably acceptable to the Government in all respects. The Developer shall be required to begin work to remedy any defect in equipment, material, design, or workmanship within fifteen (15) business days after receiving written notice of the defect from the Government. If the Developer fails to remedy the defect within a reasonable time after its receipt of written notice, the Government will have the right to deliver a second written notice and after a ten (10) business day period thereafter to require the corporate surety or insurer to replace, repair, or otherwise remedy the defect at no expense to the Government. The warranty shall not limit the Government's rights under the Agreement with respect to latent defects, gross mistakes, or fraud.

### **1.1.3 Warranty of Construction:**

(a) In addition to any other warranties in this contract, the Developer warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material or workmanship performed by the Developer or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of 1 (one) year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 (one) year from the date the Government takes possession.

(c) Performance of the warranty shall be secured by a corporate surety reasonably acceptable to the Government or by insurance in an amount not less than two million dollars (\$2,000,000) and in such form as is reasonably acceptable to the Government in all respects.

(d) The Developer shall be required to begin work to remedy any defect in equipment, material or workmanship within fifteen (15) business days after receiving written notice of the defect from the Government. The Developer shall remedy at the Developer's expense any failure to conform, or any defect. In addition, the Developer shall remedy at the Developer's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of –

- (1) The Developer's failure to conform to contract requirements; or
- (2) Any defect of equipment, material or workmanship

(e) The Developer shall restore any work damaged in fulfilling the terms and conditions of this clause. The Developer's warranty with respect to work repaired or replaced will run for 1 (one) year from the date of repair or replacement.

(f) The Contracting Officer shall notify the Developer, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(g) If the Developer fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government will have the right to deliver a second written notice and after a ten (10) business day period thereafter to require the corporate surety or insurer to commence to replace, repair, or otherwise remedy the defect, and after commencement to diligently pursue and complete such replacement, repairs or other remedies, at no expense to the Government. In the alternative, after such ten (10) business day second notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Developer's expense.

(h) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Developer shall:

- (1) Obtain all warranties that would be given in normal commercial practice;
- (2) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and
- (3) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

(i) In the event the Developer's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

(j) Unless a defect is caused by the negligence of the Developer or subcontractor or supplier at any tier, the Developer shall not be liable for the repair of any defects of material furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

(k) This warranty shall not limit the Government's rights under the Inspection of Construction clause of this contract with respect to latent defects, gross mistakes, or fraud.

#### **1.1.4 Site Investigation and Conditions Affecting the Work:**

(a) The Developer acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to:

- (1) conditions bearing upon transportation, disposal, handling, and storage of materials;
- (2) availability of labor, water (as provided by Secretary), electric power (as provided by Secretary), and roads;
- (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site;
- (4) conformation and conditions of the ground; and
- (5) character of equipment and facilities needed preliminary to and during work performance.

The Developer also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable during a due diligence inspection of the Site. Any failure of the Developer to take the actions described and acknowledged in this paragraph will not relieve the Developer from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government. Government will be responsible for any existing environmental conditions on the project site per CERCLA requirements.

(b) The Government assumes no responsibility for any conclusions or interpretations made by the Developer. Nor does the Government assume responsibility for any understanding reached or representation made concerning conditions, which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

### **1.1.5 Protection of Existing Vegetation, Structures, Equipment, Utilities, & Improvements:**

(a) The Developer shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Developer shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, by the careless operation of equipment, or by workmen, the Developer shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(b) The Developer shall protect from damage all existing improvements and utilities

(1) at or near the work site, and

(2) on adjacent property of a third party, the locations of which are made known to or should be known by the Developer

(c) The Developer shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Developer fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Developer.

### **1.1.6 Operations and Storage Areas:**

(a) The Developer shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Developer shall hold and save the Government, its officers and agents, free and harmless from liability to persons or property occasioned by the Developer's negligent performance.

(b) Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Developer only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Developer without expense to the Government. The temporary buildings and utilities shall remain the property of the Developer and shall be removed by the Developer at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(c) The Developer shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Developer when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Developer shall protect

them from damage. Should the Developer cause damage, the Developer shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

#### **1.1.7 Use and Possession Prior to Completion:**

(a) The Government shall have the right to take possession of or use any completed or, after mutual agreement with the Developer, partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Developer a list of items of work remaining to be performed or corrected ("Punchlist") on those portions of the work that the Government intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Developer of responsibility for complying with the terms of the contract. The Government's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the Government has such possession or use, the Developer shall be relieved of the responsibility for the loss of or damage to the work resulting from the Government's possession or use. If prior possession or use by the Government delays the progress of the work or causes additional expense to the Developer, an equitable adjustment shall be made in the time of completion and/or the contract price, as appropriate, and the contract shall be modified in writing accordingly.

#### **1.1.8 Cleaning Up:**

The Developer shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Developer shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Upon completing the work, the Developer shall leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer.

#### **1.1.9 Accident Prevention:**

(a) The Developer shall provide and maintain work environments and procedures which will --

(1) Safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to Developer operations and activities;

(2) Avoid interruptions of Government operations and delays in project completion dates; and

(3) Control costs in the performance of this contract.

(b) For these purposes, the Developer shall --

(1) Provide appropriate safety barricades, signs, and signal lights;

(2) Comply with the standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910; and

(3) Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.

(c) The Developer shall comply with all pertinent provisions of the latest version of the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

(d) Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or Government personnel, the Contracting Officer shall notify the Developer orally, with written confirmation, and request immediate initiation of corrective action. This notice, when delivered to the Developer or the Developer's representative at the work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After receiving the notice, the Developer shall immediately take corrective action. If the Developer fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Developer shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any stop work order issued under this clause.

(e) The Developer shall insert this clause, including this paragraph (e), with appropriate changes in the designation of the parties, in subcontracts.

#### **1.1.10 Other Contracts:**

The Government may undertake or award other contracts for additional work at or near the site of the work under this contract. The Developer shall fully cooperate with the other developers and with Government employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work (provided, however, if such coordination impacts schedule or cost of work, a Change Order shall be issued) heeding any direction that may be provided by the Contracting Officer. The Developer shall not commit or permit any act that will interfere with the performance of work by any other developer or by Government employees.

#### **1.1.11 Material and Workmanship:**

(a) All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Developer may, at its option, use any equipment, material, article, or process that, in the judgment of the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) Pursuant to the substantiation requirements, the Developer shall obtain the Contracting Officer's approval of the machinery, mechanical, and other equipment to be incorporated into the work. When requesting approval, the Developer shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information

concerning the performance, capacity, nature, and rating of the machinery, mechanical, and other equipment. When required by this contract or by the Contracting Officer, the Developer shall also obtain the Contracting Officer's approval of the material or articles which the Developer contemplates incorporating into the work. When requesting approval, the Developer shall provide full information concerning the material or articles. When directed to do so, the Developer shall submit samples for approval at the Developer's expense, with all shipping charges prepaid. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(c) All work under this contract shall be performed in a skillful and workmanlike manner. The Contracting Officer may require, in writing, that the Developer remove from the work any employee the Contracting Officer deems incompetent, careless, or otherwise objectionable.

(d) At all times during performance of this contract and until the work is completed and accepted, the Developer shall directly superintend the work or assign and have on the worksite a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Developer.

#### **1.1.12 Availability and Use of Utility Services:**

(a) The Government shall make all reasonably required amounts of utilities available to the Developer from existing outlets and supplies, as specified in the contract without charge to Developer. The Developer shall carefully conserve any utilities furnished without charge.

(b) The Developer, at its expense and in a workmanlike manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines. Before final acceptance of the work by the Government, the Developer shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

#### **1.1.13 Schedules for Construction Contracts:**

(a) The Developer shall use its commercially reasonable efforts to reach Beneficial Occupancy of the SAMS Complex within 27 months after the date of mutual execution and delivery of the Agreement, including commercially reasonable efforts to allow the Air Force access to as many of the areas in the new facilities identified in Sections 8.8(b), 8.8(c), and 8.8(d) as is reasonably practical. Although Developer shall use its commercially reasonable efforts to complete the above described areas in such 27 month period, Developer shall not be subject to any penalties, termination or an acceleration demand from the Air Force unless such portion of the Developer's work is not substantially complete within 29 months after the mutual execution and delivery of this Agreement.

(b) The Developer shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Developer proposes to perform the work, and the dates on which the

Developer contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period.

(c) The Developer shall enter the actual progress on the chart as directed by the Contracting Officer, and upon doing so shall immediately deliver three copies of the annotated schedule to the Contracting Officer. If, in the opinion of the Contracting Officer, the Developer falls behind the approved schedule for reasons other than Excusable Delays, the Developer shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the Government. In this circumstance, the Contracting Officer may require the Developer to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

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

#### **1.1.14 Organization and Direction of the Work:**

(a) When this contract is executed, the Developer shall submit to the Contracting Officer a chart showing the general executive and administrative organization, the personnel to be employed in connection with the work under this contract, and their respective duties. The Developer shall keep the data furnished current by supplementing it as additional information becomes available.

(b) Work performance under this contract shall be under the full-time resident direction of:

- (1) the Developer, if the Developer is an individual;
- (2) one or more principal partners, if the Developer is a partnership; or
- (3) one or more senior officers, if Developer is a corporation, association, or similar legal entity.

However, if the Contracting Officer approves, a specific person may represent the Developer in the direction of the work or persons holding positions other than those identified in this paragraph.

### **1.1.15 Specifications and Drawings for Construction:**

The Developer shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto.

### **1.1.16 Insurance -- Work on a Government Installation:**

(a) The Developer shall, at its own expense, carry and maintain during the entire performance of this contract, at least the kinds and minimum amounts of insurance listed below:

(1) *Workers' compensation and employer's liability.*

Developers shall comply with applicable Federal and State workers' compensation and occupational disease statutes. If occupational diseases are not compensable under those statutes, they shall be covered under the employer's liability section of the insurance policy, except when contract operations are so commingled with a Developer's commercial operations that it would not be practical to require this coverage. Employer's liability coverage of at least \$100,000 shall be required, except in States with exclusive or monopolistic funds that do not permit workers' compensation to be written by private carriers.

(2) *General liability.*

- The contracting officer shall require bodily injury liability insurance coverage written on the comprehensive form of policy of at least \$500,000 per occurrence.
- Property damage liability insurance shall be required only in special circumstances as determined by the agency.

(3) *Automobile liability.* The Developer shall carry and maintain automobile liability insurance written on the comprehensive form of policy. The policy shall provide for bodily injury and property damage liability covering the operation of all automobiles used in connection with performing the contract. Policies covering automobiles operated in the United States shall provide coverage of at least \$200,000 per person and \$500,000 per occurrence for bodily injury and \$20,000 per occurrence for property damage. The amount of liability coverage on other policies shall be commensurate with any legal requirements of the locality and sufficient to meet normal and customary claims.

(b) Before commencing work under this contract, the Developer shall notify the Contracting Officer in writing that the required insurance has been obtained. The policies evidencing required insurance shall contain an endorsement to the effect that any cancellation or any material change adversely affecting the Government's interest shall not be effective --

(1) For such period as the laws of the State in which this contract is to be performed prescribe; or

(2) Until 30 days after the insurer or the Developer gives written notice to the Contracting Officer, whichever period is longer.

(c) The Developer shall insert the substance of this clause, including this paragraph (c), in subcontracts under this contract that require work on a Government installation and shall require subcontractors to carry and maintain the insurance required in the Schedule or elsewhere in the contract. The Developer shall maintain a copy of all subcontractors' proofs of required insurance, and shall make copies available to the Contracting Officer upon request.

#### **1.1.17 Bankruptcy:**

(a) In the event the Developer enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Developer agrees to furnish, by certified mail or electronic commerce method authorized by the contract, written notification of the bankruptcy to the Contracting Officer responsible for administering the contract. This notification shall be furnished within five days of the initiation of the proceedings relating to bankruptcy filing. This notification shall include the date on which the bankruptcy petition was filed, the identity of the court in which the bankruptcy petition was filed, and a listing of Government contract numbers and contracting offices for all Government contracts against which final payment has not been made. This obligation remains in effect until final payment under this contract.

(b) Waiver of Automatic or Supplemental Stay: In the event of the filing of any voluntary or involuntary petition under the U.S. Bankruptcy Code (the "Bankruptcy Code") by or against the Developer (other than an involuntary petition filed by or joined in by the Government), the Developer shall not assert, or request any other party to assert, that the automatic stay under Section 362 of the Bankruptcy Code shall operate or be interpreted to stay, interdict, condition, reduce or inhibit the ability of the Government to enforce any rights it has by virtue of the agreements entered between the Government and the Developer or any other rights that the Government has, whether now or hereafter acquired, against any party responsible for the debts or obligations of the Developer under these Business Arrangements. Furthermore, the Developer shall not seek a supplemental stay or any other relief, whether injunctive or otherwise, pursuant to Section 105 of the Bankruptcy Code or any other provision therein to stay, interdict, condition, reduce or inhibit the ability of the Government to enforce any rights it has by virtue of these Business Arrangements against any party responsible for the debts or obligations of the Developer under these Business Arrangements. The waivers contained in this paragraph are a material inducement to the Government's willingness to enter into these Business Arrangements and the Developer acknowledges and agrees that no grounds exist for equitable relief which will bar, delay, or impede the exercise by the Government of the Government's rights and remedies against the Developer or any party responsible for the debts or obligations of the Developer under these Business Arrangements.

(c) Bankruptcy Acknowledgment: If any or all the Premises or any interest in the Premises becomes the property of any bankruptcy estate or subject to any state or federal insolvency proceeding, then the Government shall immediately become entitled, in addition to all other relief to which the Government may be entitled under these Business Arrangements, to obtain (i) an order from the Bankruptcy Court or other appropriate court granting immediate relief from the automatic stay pursuant to Section 362 of the Bankruptcy Code so to permit the Government to pursue its rights and remedies of the Government at law and in equity under applicable state law, and (ii) an order from the Bankruptcy Court prohibiting

the Developer's use of all "cash collateral" as defined under Section 363 of the Bankruptcy Code. In connection with such Bankruptcy Court orders, the Developer shall not contend or allege in any pleading or petition filed in any court proceeding that the Government does not have sufficient grounds for relief from the automatic stay. Any bankruptcy petition or other action taken by the Developer to stay, condition, or inhibit the Government from exercising its remedies are hereby admitted by the Developer to be in bad faith and the Developer further admits that the Government will have just cause for relief from the automatic stay in order to take such actions authorized under state law.

### **1.1.18 Inspection of Construction:**

(a) Definition. "Work" includes, but is not limited to, materials, workmanship, and manufacture and fabrication of components.

(b) The Developer shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. The Developer shall maintain complete inspection records and make them available to the Government. All work shall be conducted under the general direction of the Contracting Officer and is subject to Government inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) Government inspections and tests are for the sole benefit of the Government and do not --

(1) Relieve the Developer of responsibility for providing adequate quality control measures;

(2) Relieve the Developer of responsibility for damage to or loss of the material before acceptance;

(3) Constitute or imply acceptance; or

(4) Affect the continuing rights of the Government after acceptance of the completed work under paragraph (i) of this section.

(d) The presence or absence of a Government inspector does not relieve the Developer from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Contracting Officer's written authorization.

(e) The Developer shall promptly furnish, at no increase in contract price, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The Government may charge to the Developer any additional cost of inspection or test when work is not ready at the time specified by the Developer for inspection or test, or when prior rejection makes reinspection or retest necessary. The Government shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The Developer shall, without charge, replace or correct work found by the Government not to conform to contract requirements, unless in the public interest the Government consents to accept the work with an appropriate adjustment in contract price. The Developer shall promptly segregate and remove rejected material from the premises.

(g) If the Developer does not promptly commence to replace or correct rejected work after thirty (30) business days after written notice, the Government may –

(1) By contract or otherwise, replace or correct the work and charge the cost to the Developer; or

(2) Terminate for default the Developer's right to proceed in accordance with the Agreement.

(h) If, before acceptance of the entire work, the Government decides to examine already completed work by removing it or tearing it out, the Developer, on request, shall promptly furnish all necessary facilities, labor, and material. If the work is found to be defective or nonconforming in any material respect due to the fault of the Developer or its subcontractors, the Developer shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, the Contracting Officer shall make an equitable adjustment for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(i) Unless otherwise specified in the contract, the Government shall accept, as promptly as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Government's rights under any warranty or guarantee.

#### **1.1.19 Equal Opportunity:**

During performing this contract, the Developer agrees as follows:

(1) The Developer shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. However, it shall not be a violation of this clause for the Developer to extend a publicly announced preference in employment to Indians living on or near an Indian reservation, in connection with employment opportunities on or near an Indian reservation, as permitted by 41 CFR 60-1.5.

(2) The Developer shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. This shall include, but not be limited to –

- (a) Employment;
- (b) Upgrading;
- (c) Demotion;
- (d) Transfer;

- (e) Recruitment or recruitment advertising;
- (f) Layoff or termination;
- (g) Rates of pay or other forms of compensation; and
- (h) Selection for training, including apprenticeship

(3) The Developer shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(4) The Developer shall, in all solicitations or advertisements for employees placed by or on behalf of the Developer, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(5) The Developer shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Developer's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(6) The Developer shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(7) The Developer shall furnish to the contracting agency all information required by Executive Order 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor. The Developer shall also file Standard Form 100 (EEO-1), or any successor form, as prescribed in 41 CFR part 60-1. Unless the Developer has filed within the 12 months preceding the date of contract award, the Developer shall, within 30 days after contract award, apply to either the regional Office of Federal Contract Compliance Programs (OFCCP) or the local office of the Equal Employment Opportunity Commission for the necessary forms.

(8) The Developer shall permit access to its premises, during normal business hours, by the contracting agency or the (OFCCP) for the purpose of conducting on-site compliance evaluations and complaint investigations. The Developer shall permit the Government to inspect and copy any books, accounts, records (including computerized records), and other material that may be relevant to the matter under investigation and pertinent to compliance with Executive Order 11246, as amended, and rules and regulations that implement the Executive Order.

(9) If the OFCCP determines that the Developer is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part and the Developer may be declared ineligible for further Government contracts, under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Developer as provided in Executive Order 11246, as amended, in the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.

(10) The Developer shall include the terms and conditions of subparagraphs (b)(1) through (11) of this clause in every subcontract or purchase order that is not exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor.

(11) The Developer shall take such action with respect to any subcontract or purchase order as the contracting officer may direct as a means of enforcing these terms and conditions, including sanctions for noncompliance; provided, that if the Developer becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of any direction, the Developer may request the United States to enter into the litigation to protect the interests of the United States.

(12) Notwithstanding any other clause in this contract, disputes relative to this clause will be governed by the procedures in 41 CFR 60-1.1.

#### **1.1.20 Affirmative Action Compliance Requirements for Construction:**

The Developer shall take affirmative action to ensure equal employment opportunity. The evaluation of the Developer's compliance with this clause shall be based upon its effort to achieve maximum results from its actions. The Developer shall document these efforts fully and implement affirmative action steps at least as extensive as the following:

(1) Ensure a working environment free of harassment, intimidation, and coercion at all sites and in all facilities where the Developer's employees are assigned to work. The Developer, if possible, will assign two or more women to each construction project. The Developer shall ensure that foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Developer's obligation to maintain such a working environment, with specific attention to minority or female individuals working at these sites or facilities.

(2) Establish and maintain a current list of sources for minority and female recruitment. Provide written notification to minority and female recruitment sources and community organizations when the Developer or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Establish and maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant, referrals of minorities or females from unions, recruitment sources, or community organizations, and the action taken with respect to each individual. If an individual was sent to the union hiring hall for referral and not referred back to the Developer by the union or, if referred back, not employed by the Developer, this shall be documented in the file, along with whatever additional actions the Developer may have taken.

(4) Immediately notify the Government when the union or unions with which the Developer has a collective bargaining agreement has not referred back to the Developer a minority or woman sent by the Developer, or when the Developer has other

information that the union referral process has impeded the Developer's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area that expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Developer's employment needs, especially those programs funded or approved by the Department of Labor. The Developer shall provide notice of these programs to the sources compiled under subparagraph (g)(2) of this clause.

(6) Disseminate the Developer's equal employment policy by –

(a) providing notice of the policy to unions and to training, recruitment, and outreach programs, and requesting their cooperation in assisting the Developer in meeting its contract obligations;

(b) Including the policy in any policy manual and in collective bargaining agreements;

(c) Publicizing the policy in the company newspaper, annual report, etc.;

(d) Reviewing the policy with all management personnel and with all minority and female employees at least once a year; and

(e) Posting the policy on bulletin boards accessible to employees at each location where construction work is performed.

(7) Review, at least annually, the Developer's equal employment policy and affirmative action obligations with all employees having responsibility for hiring, assignment, layoff, termination, or other employment decisions. Conduct review of this policy with all on-site supervisory personnel before initiating construction work at a job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Developer's equal employment policy externally by including it in any advertising in the news media, specifically including minority and female news media. Provide written notification to, and discuss this policy with, other Developers and subcontractors with which the Developer does or anticipates doing business.

(9) Direct recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Developer's recruitment area and employment needs. Not later than 1 month before the date for acceptance of applications for apprenticeship or training by any recruitment source, send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit minority persons and women. Where reasonable, provide after-school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Developer's workforce.

(11) Validate all tests and other selection requirements where required under 41 CFR 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities. Encourage these employees to seek or to prepare for, through appropriate training, etc., opportunities for promotion.

(13) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the Developer's obligations under this contract are being carried out.

(14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user rest rooms and necessary changing or sleeping areas shall be provided to assure privacy between the sexes.

(15) Maintain a record of solicitations for subcontracts for minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's equal employment policy and affirmative action obligations.

#### **1.1.21 Approval of Subcontractors:**

The Air Force reserves the right to approve all subcontractors on this contract who will perform at least 5% of the cost. The Air Force will have fifteen workdays to approve the Developer's prospective subcontract list. Disapproval of subcontractors will be in writing and include the rationale for the disapproval.

#### **1.1.22 Notice to the Government of Labor Disputes:**

If the Developer has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Developer shall immediately give notice, including all relevant information, to the Contracting Officer.

#### **1.1.23 Secretary Delay.**

If the Government or one of its separate contractors or agents (including Secretary) delays the progress of the Developer's Work (or any portion thereof), or an act of the Government or agents causes additional expense to Developer, an adjustment shall be made in the time of

completion and/or contract price as appropriate, and the contract shall be modified in writing accordingly. For purposes of determining a Government or Secretary caused delay, if the performance of all or any part of the Developer's Work is delayed or interrupted (1) by an act of the Government or one of its separate contractors or agents (including Secretary) in the administration of this Agreement that is not expressly or impliedly authorized by this Agreement, or (2) by a failure of the Government or the Secretary to act within the time specified in this Agreement, or within a reasonable time if not specified, an adjustment shall be made for any increase in the cost of performance of Developer's Work caused by the delay or interruption and the Agreement shall be modified in writing accordingly. Adjustment shall also be made in the delivery or performance dates and any other contractual term or condition affected by the delay or interruption. However, no adjustment shall be made under this clause for any delay or interruption to the extent that performance would have been delayed or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an adjustment is provided or excluded under any other term or condition of this Agreement. The Secretary hereby agrees to pay a delay fee (the "Delay Fee") to Developer for each day of delay in the Developer's performance or delay in the critical path construction schedule (based on a 29 month schedule for Beneficial Occupancy) for the Developer's Work ("Delay Period") caused by an act (or failure to act) of the Secretary or its contractors or agents or the Government acting in its contractual capacity ("Secretary Delay"). The actual Delay Period, if any, will be re-evaluated on the date of Beneficial Occupancy to determine if the critical path of Developer's Work was delayed by a Secretary Delay. For purposes hereof the parties hereby agree that the "Delay Fee" shall be (A) all costs, expenses and liabilities incurred by Developer or Contractor arising from the Secretary Delay (including, but not limited to, extended general conditions costs, extended overhead and additional facility and equipment rental), plus (B) costs, plus (B) costs, damages and losses suffered by Developer or Contractor as a result of such delay including, but not limited to, extended "carry costs" of the Developers' construction loan and reductions in a fair return on capital or equity invested by Developer and all foreseeable damages associated with such delay. The rights and remedies of the Developer in this section are in addition to any other rights and remedies provided by law or under this Agreement.

**1.1.24 (a) Excusable Delays Definition.**

Developer's obligations hereunder (including all construction schedules) shall be extended on a day for day basis (and the Contractor's and Developer's right to proceed shall not be terminated) and the Developer shall not be liable for or charged with any damages under the Purchase Agreement (as such excusable delays are also referenced in the Purchase Agreement) or hereunder or otherwise, if any of the following (collectively, "Excusable Delays") shall have occurred: (a) a delay in performing or completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor and Developer (including, but not limited to, undocumented subsurface conditions or hazards) or (b) a delay in performing or completing the work arises as a result of or in connection with any delay described or contemplated in the Construction Ground License. Examples of such Excusable Delays include, but are not limited to the following: (i) events of Force Majeure; (ii) acts of the government in either its sovereign or contractual capacity; (iii) acts of another party in the performance of a contract with the Government or the Secretary and (iv) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Developer and the subcontractors or suppliers.

(b) **Force Majeure Definition.** When Force Majeure is used herein it means any of the following events, occurring without the fault or negligence of the Developer: acts of nature (including hurricanes, typhoons, tornadoes, cyclones, other severe storms including excessive rainy weather in excess of the days anticipated in the schedule for construction provided by Developer or its Contractor, winds, lightning, floods, earthquakes, volcanic eruptions, fires, explosions, disease, or epidemics); fires and explosions caused wholly or in part by human agency; acts of war or armed conflict; riots or other civil commotion; terrorism (including hijacking, sabotage, chemical or biological events, nuclear events, disease-related events, bombing, murder, assault and kidnapping), or the threat thereof; strikes or similar labor disturbances.

The Contractor's and Developer's obligations hereunder shall be extended and the Contractor's and Developer's right to proceed shall not be terminated nor the Developer charged with damages hereunder, if the delay by Developer or Contractor in completing the Developer's Work arises from Excusable Delays or a Secretary Delay.

## **2. REFERENCES**

### **2.1 CODE REQUIREMENTS:**

The Developer shall comply with the following codes: (the role of the "building official" described in the code will be performed by Air Force or by the Air Force's designee):

Title 24 California Building Codes 2001

- 1 California Building Code (1997 Uniform Building Code Volumes 1, 2)
- 2 California Electrical Code (CEC) 2001
- 3 California Mechanical Code (2001 Uniform Mechanical Code)
- 4 California Plumbing Code (2001 Plumbing Code of the IAPMO)
- 5 California Energy Code June 2001
- 6 California Elevator Safety Construction Code – Title 8, Group 3, A17.1 - 1996
- 7 California Fire Code (2001 uniform Fire Code)

### **2.2 STATE OF CALIFORNIA REGULATORY REQUIREMENTS:**

The State of California Building code including all associated and/or referenced documents or codes as specified in Section 2.1.

### **2.3 NON-REGULATORY CRITERIA DOCUMENTS:**

In addition to specific regulatory requirements, the following documents are reference standards for use in designing the project. To the extent that the Building Codes referenced in 2.1 do not address the design program or design criteria or are not reasonably inferable from the Code, the Developer shall comply with these non-regulatory criteria documents.

1. 29 CFR 1926 Safety and Health Regulations for Construction

2. ADA Act of 1998 28 CFR 36 Department of Justice regulations including ADAAG
3. ADA Act of 1998 29 CFR 1910 OSHA standards as a work place
4. ADA Act of 1998 49 CFR 27,37,38 Dept. of Transportation regulations including ADAAG
5. AFCEE Design Guide for Landscape Design
6. AFI 31-102 Physical Security
7. AFI 32-7042 Solid and Hazardous Waste Compliance
8. AFM 33-221 Communications Security
9. Air Force ETL 00-5 Seismic Design for Buildings and Other Structures
10. Air Force ETL 00-6 Air force Carpet Standards
11. Air Force Systems Security Instruction AFSSI 3030
12. All applicable Federal Regulations as referenced in prevailing code documents listed above
13. All applicable State regulations as referenced in prevailing code documents listed above
14. ANSI/TIA/EIA 607 Commercial Bldg Grounding/Bonding Rqts for Telecommunications
15. ANSI/ASCE 7 Minimum Design Loads for Buildings and other Structures
16. ANSI/TIA/EIA-568 Commercial Building Telecommunications Standard
17. ANSI/TIA/EIA-569 Commercial Building Standard for Telecommunications Pathway Spaces
18. ANSI/TIA/EIA-606 Admin Standard for Telecom Infrastructure of Commercial Buildings
19. ASHRAE Standards as referenced in code documents listed above
20. ASTM D 1003 Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics
21. California Hazardous Waste Control Law
22. CPTED (crime prevention through environmental design)
23. DCID 1/21 Physical Security Standards for SCIF
24. DOD 5200 1-R Information Security Program
25. Executive Orders 13101 Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition
26. Executive Orders 13123 Greening the Government Through Efficient Energy Management
27. FEMA 302 NEHRP Recommended Provisions for Seismic Regulations for New Buildings and other Structures
28. FEMA 350 Recommended Seismic Design Criteria for New Steel Moment-Frame Bldgs
29. GSA/DOE Commissioning Guide
30. IEEE 1100 Recommended Practice for Powering/Grounding Electronic Equipment
31. IEEE 493 Recommended Practice for Design of Reliable Industrial/Commercial Power
32. IEEE 739 Recommended Practice for Energy Mgt in Industrial/Commercial Facilities

33. IESNA Lighting Hand Book
34. LAAFB General Plan 2000
35. National Electric Safety Code
36. NFPA 101 Life Safety Code
37. NFPA 13 Installation of Sprinkler Systems
38. NFPA 14 Standard for installation of Standpipe, Private Hydrants, and Hose Systems
39. NFPA 24 Standard for Installation of Private Fire Service
40. NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations
41. NFPA 780 Standard for Installation of Lightning Protections Systems
42. NSTISSAM TEMPEST 2-95 RED/BLACK Installation Guidance
43. NSTISSI No. 7003, Protective Distribution System
44. RCRA Resource Conservation and Recovery Act
45. TIA/EIA TSB67 Transmission Perf Spec for Testing of Unshielded Twisted Pair Cabling Sys
46. TIA/EIA TSB75 Additional Horizontal Cabling Practices for Open Offices.
47. Title 24 California Building Code
48. Title 40 CFR Protection of Environment
49. United Facilities Criteria (UFC) 4-010-01 DOD Minimum Antiterrorism Design Guide
50. United Facilities Criteria (UFC) 4-010-10 DOD Minimum Antiterrorism Standoff Distances
51. United Facilities Criteria (UFC) 4-740-14 Design: Child Development Centers 1 Aug 2002
52. USAF Legal Facilities Design Guide, see Exhibit A

## Notes

1. Prevailing codes listed in Section 2.1 are the only regulatory requirements for this project. Design and construction of the Systems Acquisition Management and Support (SAMS) Complex will be in conformance with the prevailing codes listed in Section 2.1. Provisions of the California Building Code (1997 Uniform Building Code of the ICBO) take precedence over conflicting provisions in other applicable codes.
2. Design and construction of the Systems Acquisition Management and Support (SAMS) shall accommodate the provisions contained in the Non-Regulatory Criteria Documents. If any referenced Non-Regulatory Criteria Documents conflict with provisions of the prevailing code, the requirements of the prevailing code will take precedence over referenced standards.
3. Prevailing Code and Non-Regulatory Criteria Documents identified in Section 2.3 shall be utilized for the Design of the Systems Acquisition Management and Support (SAMS) Project.

### 3. PROJECT DESCRIPTION AND PHYSICAL REQUIREMENTS

The Facility Space Requirements table lists the gross floor area requirements for various categories of work and special purpose areas within the SAMS Complex. Common areas such as hallways, restrooms, and mechanical rooms etc. will be accommodated within these gross floor areas.

**Table 3.1 Facility Space Requirements**

Space Type	Gross Floor Area (sq ft.)	Attrib. to elimination of mech. penthouse	Final Gross Floor Area (sq ft.)	Remarks
Standard Office Space	457,510	-13,388	444,122	Includes office, conference, training rooms and other miscellaneous space
SCIF Space	26,390	0	26,390	Build IAW DCID 1-21
SECRET Open Storage	4,000	0	4,000	
Conference Center	18,000	-527	17,473	
Consolidated-Club	20,000	-585	19,415	
Presentation room (RPC)	5,000	-146	4,854	
Child Development Center	17,000		17,000	
Staff Judge Advocate & Court Room	7,900	-231	7,669	Per Air Force Legal Facilities Design Guide
Command Post (DO)	4,200	-123	4,077	
<b>Total for project</b>	<b>560,000</b>			
Reduction for elevator and mechanical penthouses		-15,000		VE4 & 5 deleted penthouses, thus resulting in a reduced GFA
<b>Adjusted GFA after value engineering</b>			<b>545,000</b>	

The requirements for each type of space listed in the Facility Space Requirements table will be further defined within this document. In general, the facilities requirements will include architectural, electrical, mechanical, communications and other special or miscellaneous requirements as identified.

For the project requirements, the overall gross floor area (GFA) and the 85% Gross/Useable ratio as described in Section 4.2.7 shall govern. If the requested program space does not fit within the GFA, Air Force will revise the program and/or design guidelines to ensure a fit within overall GFA and 85% G/U ratio.

### **3.1 ARCHITECTURAL GUIDELINES**

#### **3.1.1 Building Material:**

(a) The approved and recommended architectural materials for LAAFB are listed below, Developer shall select from among these materials as identified in the Developer's Final Proposal Revisions:

- (1) Metal skin panels similar to those on the Commissary, Medical-Dental Clinic and Fitness Center
- (2) Stone Veneer
- (3) Architectural pre-cast or site-cast concrete panels.
- (4) Enhanced-finish concrete masonry units (Exposed aggregate or burnished finish)
- (5) Exterior cement plaster
- (6) Glass with clear anodized aluminum framing or a butt glass "frameless" system. Tinted glazing is preferred. Reflective glass is acceptable. Glass color and reflectivity will be subject to review and approval by the Air Force.
- (7) Standing seam metal roofs for slopped and curved surfaces. Metal shall be factory-finish color with standing seams at maximum 18" o.c.

#### **3.1.2 Colors:**

The approved and recommended exterior colors for LAAFB are:

- (a) Colors such as off white and light gray shades shall be the predominate scheme for exterior wall surfaces.
- (b) Glazing shall be clear or have minimal tint to meet thermal criteria of title 24 requirements.
- (c) Storefront systems shall be clear anodized, or similar to Kawneer Co. "Platinum Ice".
- (d) Use of accent features at locations such as primary entrances is encouraged. "Air Force Blue" color may be incorporated in limited quantity.
- (e) Standing seam barrel roofs shall be similar in color to Berridge Manufacturing Co., "Zinc Grey".
- (f) Exterior site hardscape shall be gray concrete.
- (g) All colors shall be factory applied or integral to the material.

(h) Exterior cladding material shall be light in color.

**3.1.3 Internal Vehicular Circulation:**

(a) Control of visitor vehicular access for security and traffic purposes shall be considered as the vehicular access and parking is designed. Visitor vehicular way finding from the location of the Douglas Street entrance to designated visitor parking shall be clearly defined by roadway improvements, landscaping and code required signage. All other way finding signs shall be by Air Force.

(b) Primary access and egress for staff will be from Aviation Blvd. on the east leading directly to the parking areas to the south. Peak load access and egress should be anticipated in the master planning of the entrances and the surface parking lots, as many staff will be commuting on a similar daily schedule. Master plan design provisions for security control access will be reviewed at this entrance, Air Force to provide construction of these facilities.

(c) Minimizing on-site vehicular use is vital to supporting the pedestrian oriented aspect of the new site plan. Convenient, pleasant and logical pedestrian access from the staff parking areas to each of the employment centers is a critical design issue.

(d) Surface parking lots should have their visual impact reduced by landscape screening and placement of trees within the parking lot to the extent allowed by Force Protection requirements and landscape allowance.

(e) The minimum parking spaces for specific buildings / areas on Area B are stated in the table below. All of the parking requirements below for the facilities other than the SAMS complex are surface parking spaces. Although a parking structure for the SAMS complex is permissible, it is highly beneficial to the Air Force to minimize or eliminate this structure on Area B. LA AFB acknowledges that the Developer's proposal includes only surface parking and that parking requirements were satisfied within that proposal.

<b>Area B Parking</b>	<b>Spaces</b>	<b>Master Plan Area Allocation</b>	<b>Build</b>
SAMS Complex	609	Developer	Developer
Aerospace	491	Developer	Aerospace
ABG Phase I	275	Developer	LA AFB
Child Development Center	34	Developer	Developer
Medical Clinic	86	Developer	LA AFB
Fitness Center	8	Developer	LA AFB
Base Exchange	400	Developer	LA AFB
Commissary	288	Developer	Resurface by Developer
Visitor's Center	11	Developer	LA AFB
GOV	60	Developer	LA AFB

Note: Location of 'areas of responsibility' are indicated in Developer's Final Proposal Revision

(f) The Aerospace Corporation has recently acquired the 3.6-acre parcel of land adjacent to the eastern boundary of Area B. The intended use of this property is surface parking for Aerospace and Air Force employees. Therefore, the 3.6-Acre parcel intended for surface parking can be included as part of the 1100 space requirement for the SAMS Complex. If desired by the Air Force, the (g) Air Force may relocate power lines along the east property line so as to not obstruct or constrain parking or traffic flow in this area.

#### **3.1.4 Security Perimeter:**

Force Protection shall be incorporated into the planning and architectural design of the LAAFB. LAAFB shall be consulted throughout the project so that security requirements can be integrated into the design in an appropriate and inconspicuous manner.

#### **3.1.5 Pedestrian Circulation:**

(a) Provide pedestrian circulation routes that are safe, orderly and attractive. Way finding may be augmented by signage, but should be primarily intuitive by the design of the site, the landscape, open spaces and the buildings and entrances.

(b) The central courtyard mall and plaza will be oriented exclusively to pedestrians. These important areas should be nodes within a network of pedestrian routes that serve the entire site and ultimately the entire Base. This will allow outdoor areas that can be used not only for traversing the Base from one building to another, but as a pleasant and stimulating additional space for thought, breaks and formal or informal discussion. Special paving materials, colors and patterns should be incorporated into the design, as indicated in Developers 10% approved Interim Design Package. This same open space, viewed from the windows of the offices above, will provide pleasant, quiet vistas internal to the site. A water feature shall be included in the formal plaza area, and smaller water features may be included in the mall. Both the mall and plaza shall incorporate areas for seating small groups of people (actual seating furniture to be GFGI). Shading devices in the form of shade trees should enhance the area.

(c) Pedestrian circulation from the new facilities to other areas of the site including the Medical/Dental Clinic, Fitness Center, Commissary, etc. should also be mater-planned with the same care, as those paths will also be highly utilized.

#### **3.1.6 Service Access:**

(a) The design must incorporate service vehicle access. Vehicles of varying sizes, from 18 wheels to panel trucks, will need to have access to the site. Secondary service access for smaller vehicles should be limited to clearly defined and appropriately scaled access routes and delivery points that do not require use of pedestrian ways, and are not readily visible or noisy to those working on the Base. Access for emergency vehicles can be limited in areas to emergency use only by use of breakaway bollards, decorative but vehicle supporting paving, or other traffic controlling devices.

(b) Special consideration should be given to fuel vehicle access. These government vehicles require access to generator locations supporting all SAMS facilities.

The site layout and design, circulation plan, force protection plan and physical limitations such as hose lengths all need to be coordinated into the master plan.



### 3.1.7 Open Space:

(a) Open spaces will serve to define the LAAFB site. Open spaces will be as indicated in the Developer's Final Proposal Revision. The center mall of the SAMS development is the main organizing element of that portion of the Base, and needs to be carefully designed to assure activity and allow for functional seating areas of varying sizes and configurations.

(b) Care shall be taken that wind and shade patterns altered by the building mass be anticipated so that the spaces between the buildings can successfully function as desirable and usable outdoor seating areas at all times of the day and through all seasons.

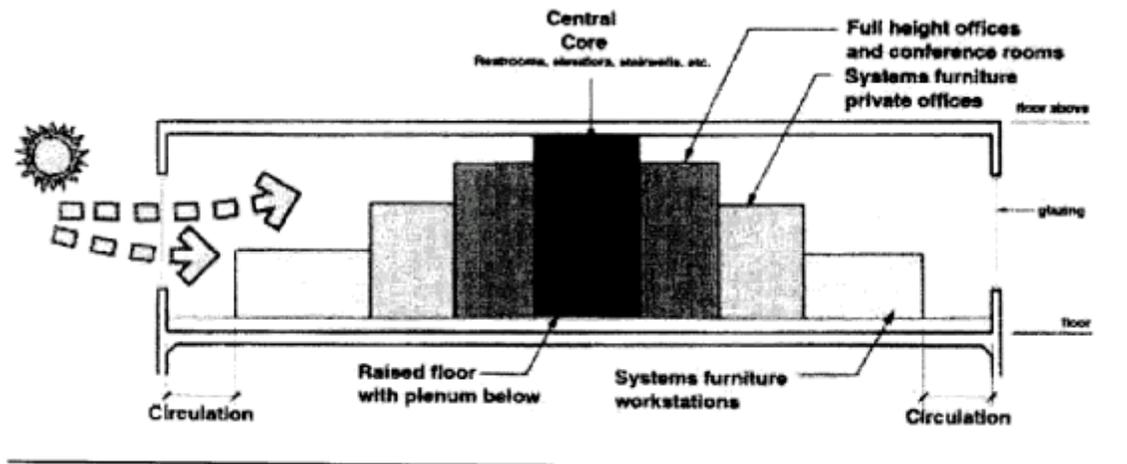
(c) Open space also includes the pedestrian ways from parking to the building entrances. These areas need to be designed to be pleasant and passively secure.

(d) A monument sign as well as Air Force displays may be incorporated into the plaza.

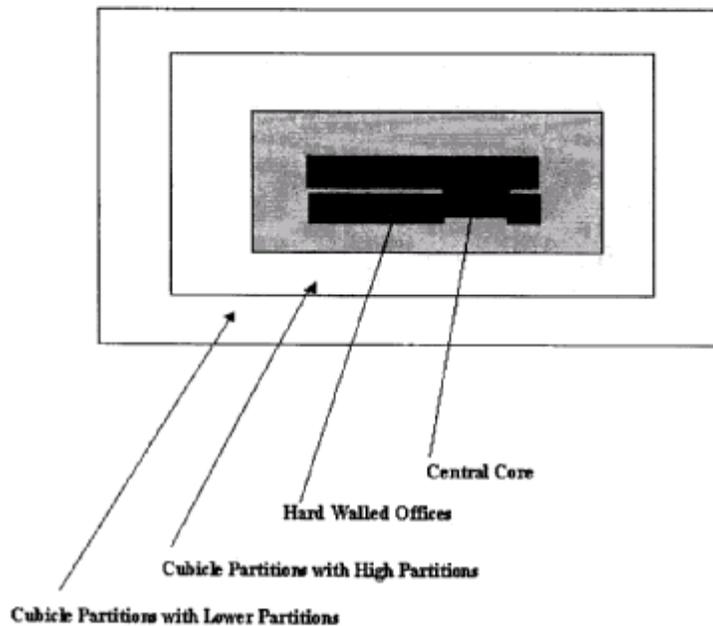
### 3.2 SAMS MASSING AND FACADE GUIDELINES:

(a) The massing and facade appearance of the SAMS complex, as it rises from the ground, is dependent on the building layouts, final footprints and how the buildings are vertically configured to accept daylighting. The following are objectives for those developments. Exterior offices may be requested in certain instances. In the design phase, the Developer will make every effort to maintain perimeter circulation as the programmatic requirements allow it.

#### Floor Plate and Typical Floor-Building Section Analysis



Typical Floor-Building Section to Maximize Natural Daylight Penetration into Work Areas



(b) Typical floorplates and sections in SAMS office space will be organized as follows to maximize penetration of daylight into interior spaces:

- (1) Hard wall offices will be located in the interior of the space, adjacent to the core.
- (2) Cubicles with higher partition walls will be located adjacent to the hardwall offices and core, separated by a major corridor.
- (3) Cubicles with lower partition walls will be located adjacent to the exterior of the building. Low wall partitioned conference rooms (SCL 6 and 7) and teaming areas will be located in this area as well.

(c) The Developer will propose floor plates that optimize the siting, functionality, and economics. The Air Force desires floor plates that promote the use of natural light in the work areas and are at a human scale.

#### **4. REQUIREMENTS**

(a) The requirements for SAMS are documented in the following sections that are divided by specialty or function. These divisions include requirements for General, Architectural, Mechanical, Electrical, Communications and other Special requirements. Each section provides the requirements in a narrative and tabular format. These requirement sections provide additional information and descriptions intended for use by the Developer in finalizing the SAMS project design.

(b) The Air Force envisions using a design build process for the SAMS Complex. It is intended that the Developer will use the information in this document to design and construct what is essentially a build-to-suit facility. Throughout the process the Developer will need to work closely with the Air Force since construction phasing is required in order to avoid disruption to ongoing Air Force missions.

(c) The Air Force will be involved in the design of the facility including the finish levels, floor plan layout, communications, and color/material selections consistent with this document and in a timely fashion in accordance with the requirements of the project schedule.

(d) Once the project starts construction, the Developer shall have a full-time project manager and will maintain an on-site presence. The project manager will develop a quality assurance plan and make copies available to the Air Force management team.

#### **4.1 GENERAL REQUIREMENTS:**

(a) The General Requirements section provides detailed space and occupancy requirements for SAMS. This data supplements the overall SAMS project physical space requirements provided in Section 3, Project Description and Physical Requirements.

(b) The physical space requirements for SAMS are divided into seven space types based upon similar power, communications or occupancy requirements. The basic space type divisions include: Office, Conference, Training, Specialty, Miscellaneous, Communications, and other Facility space requirements. This space type division carries through the remainder of the requirements sections for consistency.

#### **4.2 PERFORMANCE**

##### **4.2.1 Basic Function**

(a) Provide built elements and site modifications as required to fulfill needs described in the project program.

(b) The complete project comprises the following elements:

(1) Substructure (A): Elements below grade and in contact with the ground.

(2) Shell: The superstructure, exterior enclosure, and the roofing

(3) Interiors: Interior construction, stairs, finishes, and fixtures, except fixtures associated with services and specialized equipment.

(4) Services: Mechanized, artificial, automatic, and unattended means of supply, distribution, transport, removal, disposal, protection, control, and communication.

existing elements. (5) Demolition: Removal of unneeded and undesirable

utilities. (6) Sitework: Modifications to the site, site improvements, and

#### 4.2.2 Environmentally Responsible Design:

(a) In addition to other requirements, provide design and construction that minimizes adverse effects on the exterior environment, enhances the quality of the indoor environment, and minimizes consumption of energy, water, construction materials, and other resources.

(b) The goals listed below are some of those that are applicable to the project.

(1) The goals indicated as "required" must be achieved.

(2) The goals indicated "as specified" have different requirements specified in other chapters.

(c) Sitework:

(1) Sediment and erosion control: Required.

- Water Conservation:

(2) All exterior landscape irrigation will be with reclaimed water and purple pipe will be used: Required. Air Force to provide any required filtration or treatment systems. Inclusion of purple pipe at the 2 SAMS buildings to facilitate the future use of reclaimed water (interior).

- Energy Conservation:

(3) Minimum energy efficiency: Provide energy consumption of an equivalent minimally complying baseline building meeting California Building Standards Title 24: Required.

commissioning: Required. (4) Improvement of efficiency through basic building

commissioning: Required. (5) Improvement of efficiency through comprehensive building

certification. (6) Building commissioning is not synonymous with LEED

(7) No use of CFC-based refrigerants: Required.

- (8) No use of HCFC's or Halon: Required.
  - Conservation of Materials and Resources:
- (9) Central location for collection and storage of recyclables: Required.
- (10) Recycling and/or salvaging of construction waste: Required.
  - Indoor Environmental Quality:
    - (1) Smoking will be prohibited in the building.
    - (2) Minimum ventilation performance: Required.
    - (3) Construction procedures that reduce impact on interior air quality during and after construction as mandated by South Coast Air Quality Management District: Required.
    - (4) Use of materials that are low-emitting, non-toxic, and chemically inert: Required.
    - (5) Control of sources of indoor pollutants: Required.
    - (6) Thermal comfort conditions: As specified.

#### 4.2.3 Amenity and Comfort:

Thermal Performance: Design and construct to provide comfortable interior environment in accordance with the code and the following:

- (a) Summer Interior Design Conditions: In lieu of specific criteria to the contrary the following conditions will prevail.
  - Daytime Setpoint: 72 deg F, plus or minus 2 deg F except as specified in the project program.
- (b) Winter Interior Design Conditions: In lieu of specific criteria to the contrary the following conditions will prevail.
  - Daytime Setpoint: 68 deg F, plus or minus 2 deg F except as specified in the project program.
- (c) Outside Air Design Conditions:
  - (1) Summer Outside Air Design Temperature: 0.4 percent cooling design condition listed in the 1997 ASHRAE Fundamentals Handbook.

(2) Winter Outside Air Design Temperature: 99.6 percent heating design condition listed in the 1997 ASHRAE Fundamentals Handbook.

(d) Energy Design Wind Speed: Comply with ASHRAE and prevailing Meteorological Standards.

#### **4.2.4 Health and Safety:**

(a) Fire Resistance: Provide construction type in accordance with State of California building Code.

(b) Prevention of Accidental Injury: As required by code and as follows:

(1) Safety Glazing: Provide in locations as required by code.

(2) Other requirements specified in other chapters.

(3) Substantiation (Where compliance is duplicated by other requirements as defined herein only a single substantiation issuance or performance is required.):

(4) Schematic Design: Identification of building elements that require special accident prevention measures.

(c) Design Development: Identification of safety measures taken, detailed description of design criteria, and structural analysis of load-resisting elements prepared by licensed structural engineer.

(d) Construction Documents: For load-resisting elements, structural design calculations and drawings sealed by licensed structural engineer.

(e) Lightning Hazard: Design to prevent damage to occupants, structure, services, and contents due to lightning strikes if required by Title 24 CBSC.

(f) Health Hazards:

(1) Design to prevent growth of fungus, mold, and bacteria on surfaces and in concealed spaces.

(2) Hazardous Construction Materials: Design and construct to comply with the requirements of the code.

(3) Indoor Air Quality: Design and construct to comply with the code and the following:

(4) Acceptable air quality as defined by ANSI/ASHRAE 62.

(g) Substantiation (Where compliance is duplicated by other requirements as defined herein only a single substantiation issuance or performance is required.):

(1) Design Development: Identification of methods to be used to comply with requirements; ventilation design calculations. Identification of unusual indoor contaminants or sources and methods to mitigate their effects on occupants.

(2) Construction Documents: Specifications showing that construction materials are not contaminant sources and do not adversely affect air quality.

(3) Commissioning: Field measured outside and supply air quantities for each air handler.

(4) Occupancy: Field testing to show compliance, after full occupancy.

(h) Physical Security: In addition to any provisions that may be required by law or code, design and construct both exterior and interior spaces to incorporate accepted principles of crime prevention through environmental design (CPTED), using natural (as opposed to technological) methods of providing surveillance, access control, and territorial reinforcement wherever possible.

(1) Definition of Elements at Ground Level: For purposes of physical security, any element within 20 feet of the ground, grade, or adjacent paving.

(i) Security Zones:

(1) Public Access Zone: That area to which the public has free access, including entrance gate, unsecured parking at vehicle inspection area.

(2) Reception Zone: The area to which the general public has access but beyond which access is restricted at all times.

(3) Operations Zone: The area to which only employees and visitors escorted by staff having reason to be there have access.

(4) Secure Zone: The area to which access is always controlled and which is monitored continuously.

(5) High-Security Zone: Areas indicated in project program and areas named "vault", "secure file room", and "cash room".

(6) High-security Zone: The areas as defined by the Los Angeles Air Force Base.

(j) Electrically-Operated Equipment and Appliances: UL listed for application or purpose to which they are put; suitable for wet locations listing for exterior use.

(k) The fire protection (sprinkler) zones, the fire alarm zones, the pull stations, and the smoke detectors will all incorporate electronic detection (if they do not already)

and report to the Fire Alarm Control Panel, which will report a trouble condition to the Building Automation System.

#### **4.2.5 Structure:**

(a) Earthquake Loads: Accommodate loads as prescribed by codes referenced in Section 3.2.

(b) Substantiation:

(1) Schematic Design: Detailed listing of design criteria and preliminary analysis, prepared by a licensed structural engineer.

(2) Construction Documents: Detailed design analysis and Drawings by State of California licensed structural engineer.

#### **4.2.6 Durability:**

(a) Expected Service Life Span: Expected functional service life of the specific built portions of this project shall be 50 years with normal industry standard maintenance.

(b) Service life spans of individual elements that differ from the overall project life span are defined in other sections.

(c) Substantiation: Since actual service life cannot be proven, substantiation of actual service life is not required; however, the following are reasonable indicators of anticipatable service life:

(1) Schematic Design or Design Development: Service life expectancy analysis, for each element for which life span is specified; including:

(2) Length of effective service life, and aesthetic service life if specified, with action required at end; e.g. complete replacement, partial replacement, or refurbishment.

(3) Conditions under which estimate will be valid; e.g. expected uses, inspection frequency, maintenance frequency, etc.

(4) Design Development: Life cycle cost of project, over the specified project service life, excluding operating staff costs; include costs of:

- Replacement of each element not expected to last the life of the project; identify the frequency of replacement.
- Deduct salvage value of replaced elements.

- Calculate costs in today's dollars, disregarding the time value of money, inflation, taxes, and insurance.

(5) Flood Resistance: Design facility to meet all applicable code requirements for flood resistance.

(6) If applicable do not provide enclosed interior spaces below 1 percent annual chance flood level, except for Building Services (U1), Utility Equipment (U2), and Automotive (V1) spaces;

(7) At interiors below 1 percent annual chance level provide interior construction and fixtures that are inherently water resistant.

#### **4.2.7 Operation and Maintenance:**

(a) Space Efficiency: Minimize floor area required while providing specified spaces and space relationships, plus circulation and services areas required for functions. For purposes of this project.

(b) "Gross" Floor Area: This will be measured to the outside face of the dominant exterior wall surface. The dominant portion shall mean the outermost surface of the exterior skin system that represents the majority of the surface measured between a floor.

(c) "Usable" areas for the office space portions of the project shall be defined for the purposes of this project as gross area minus core and shell facilities such as stairways, elevator shafts, mechanical shafts and toilet rooms, as well as elevator lobbies, atriums, courtyards, primary required egress corridors (it is assumed that Project Program will not require egress corridors from training spaces, office suites, or conference rooms on upper floors), mechanical and electrical rooms, and one ground floor entrance lobby per building. These definitions should, however, be considered default directions for those portions of the project that are not specifically referenced by Appendix A.

(d) Usable Area: The usable to gross (U/G) Ratio shall be 85 percent, minimum, for the building as a whole, calculated as defined above.

(e) Substantiation: Areas and ratios measured and calculated in accordance with the above definitions.

(f) Design Development: Calculation of Gross Floor Area, Floor Usable Areas, and Building Usable Area, U/G Ratio, and net area of each space.

(g) Energy Efficiency: Minimize energy consumption while providing function, amenity, and comfort specified. Comply with ASRAE 90.1. Compliance with ASHRAE 90.1 shall be deemed equivalent to compliance with California Title 24. (Documentation of said compliance with Title 24 (ASHRAE 90.1).

(1) Provide energy efficient design using procedures and values specified in Title 24.

(2) Provide energy consumption of an equivalent minimally-complying baseline building, demonstrated by comparing the actual Design Energy Cost to the Energy Cost Budget of a prototype building, both calculated in accordance with Title 24.

(h) Provide energy efficient design using procedures and values specified in Title 24 (ASHRAE 90.1).

(i) Substantiation (Where compliance is duplicated by other requirements as defined herein only a single substantiation issuance or performance is required.):

(1) Design Development: Detailed listing of design criteria and design analysis showing compliance, prepared by a licensed mechanical engineer.

(2) Design Development: Energy cost of all energy-consuming equipment and systems over the first year of operation; include analysis of probable change in annual cost over time due to aging but disregarding inflation and rate changes.

(3) Construction Documents: Detailed listing of design criteria and design analysis showing compliance, prepared by a licensed mechanical engineer. Provide updated and annotated changes, additions and deletions in relation to the previous design stage.

(4) Construction Documents: Energy cost of all energy-consuming equipment and systems over the first year of operation; include analysis of probable change in annual cost over time due to aging but disregarding inflation and rate changes. Provide updated and annotated changes, additions and deletions in relation to the previous design stage.

(j) Water Consumption: Minimize water consumption. Comply with Title 24 CBSC.

(1) Substantiation (Where compliance is duplicated by other requirements as defined herein only a single substantiation issuance or performance is required.):

(2) Design Development: Quantity of water that will be used in the first year of operation, divided into domestic water, HVAC water, and other water categories, with required storage capacity and quantity of water recycled, if any; include basis of calculations.

(3) Construction Documents: Updated water consumption, based on actual equipment selections and sizes.

(k) Waste (Trash/Rubbish) Removal: As described in the project program.

(l) Ease of Operation: Provide facility, equipment, and systems that are easily operated by personnel with a reasonable level of training for similar activities.

(m) Minimize the need for specialized training in operation of specific equipment or systems; identify all equipment and systems for which the manufacturer recommends or provides training programs.

(n) Train Air Force's personnel in operation of equipment and systems.

(o) Substantiation (Where compliance is duplicated by other requirements as defined herein only a single substantiation issuance or performance is required.):

(1) Design Development: Operating impact analysis, including identification of type and quantity of staff, tools, and supplies required; estimate of impact that aging materials will have on operating requirements; no cost calculations required; identify source of data.

(p) Construction Documents: Updated operating impact analysis, based on actual product selections.

(q) Ease of Maintenance: Minimize the amount of maintenance required.

(r) Substantiation (Where compliance is duplicated by other requirements as defined herein only a single substantiation issuance or performance is required.):

(1) Design Development: Maintenance impact analysis, including identification of maintenance effort (type of staff, time required, and frequency), tools, and supplies required, over expected functional and aesthetic service life of project; including preventive maintenance, replacement of parts, and cleaning, but not energy for operation or replacement at end of service life; no cost calculations required; identify source of data.

(s) Design Development: Maintenance cost estimate for first year of operation, based on use of maintenance contracts; estimate of the impact that aging materials will have on maintenance costs; description of maintenance activities included in estimated cost.

(t) Construction Documents: Updated maintenance impact analysis, based on final product selections.

(u) Construction Documents: Updated maintenance cost for first year of operation, based on actual product selections.

(v) Ease of Repair: Elements that do not meet the specified requirements for ease of repair may be used, provided they meet the specified requirements for ease of replacement of elements not required to have service life span equal to that specified for the project as a whole; the service life expectancy analysis and life cycle cost substantiation specified for service life are provided; and Air Force's acceptance is granted.

(w) Allowance for Changes in Occupancy and Arrangement:

(1) Furniture System Office Spaces: Design for churn of at least 75 percent, requiring very frequent minor changes in location and workplace layout.

(2) Size and Layout: So that relocation of individuals and small groups can be accomplished overnight with no disruption of work and no disruption of work of neighbors and no degradation of functionality or amenity.

(3) All spaces involved in changes described above include special air exhausts, special lighting, and special cooling which must be moved at the same time.

(4) Developer shall provide single point of connection to each office furniture module for data, telephone and power requirements.

(x) Substantiation:

(1) Ease of Replacement:

(2) Elements Not Required to have the Expected Service Life Span Equal to that Specified for the Project as a Whole: Make provisions for replacement without undue disruption of building operation.

**4.2.8 Elements and Products:**

(a) In addition to requirements specified in other chapters, provide products and elements that comply with the following.

(b) Elements Made Up of More Than One Product:

(1) Where an element is specified by performance criteria, use construction either proven-in-use or proven-by-mock-up, unless otherwise indicated.

(2) Proven-In-Use: Proven to comply by having actually been built to the same or very similar design with the same materials as proposed and functioning as specified.

(3) Proven-by-Mock-Up: Compliance reasonably predictable by having been tested in full-scale mock-up using the same materials and design as proposed and functioning as specified. Testing need not have been accomplished specifically for this project; when published listings of independent agencies include details of testing and results, citation of test by listing number is sufficient (submittal of all test details is not required)

(4) The Developer may choose whether to use elements proven-in-use or proven-by-mock-up, unless either option is indicated as specifically required.

(5) Where test methods accompany performance requirements, use those test methods to test the mock-up.

(c) Where a type of product is specified, without performance criteria specifically applicable to the element, use the type of product specified.

(d) Where more than one type of product is specified, without performance criteria specifically applicable to the element, use one of the types of products specified.

(e) Where a type of product is specified, with applicable performance criteria, use either the type of product specified or another type of product that meets the performance criteria as proven-in-use or proven-by-mock-up.

(f) Where more than one type of product is specified, with applicable performance criteria, use either one of the types of products specified or another type of product that meets the performance criteria as proven-in-use or proven-by-mock-up.

(g) Where neither types of products nor performance criteria are specified, use products that will perform well within the specified life span of the building.

(h) Products:

- Where a product is specified only by a manufacturer name and model number/brand name, use only that model/brand product.

(i) Where the properties of a product are specified by description and/or with performance criteria, use products that comply with the description and/or performance criteria.

(j) Where manufacturers are listed for a particular product, use a product made by one of those manufacturers that also complies with other requirements.

#### **4.2.9 Substantiation:**

(a) Definition: Substantiation is any form of evidence that is used to predict whether the design will comply with the requirements or to verify that the construction based on the design actually does comply. During Schematic Design, Design Development, and Construction Documents, requirements to submit substantiation are primarily intended to forestall use of designs or constructions that will not comply. At any time before completion of construction, substantiation is presumed to be only a prediction and may subsequently be invalidated by actual results.

(b) Regardless of whether substantiation is specified or not, the actual construction must comply with the specified requirements and may, at Air Force discretion, be examined, inspected, or tested to determine compliance. If the Air Force elects to perform destructive testing at its expense, and the tested material is found to be in compliance with the project requirements, the Air Force will pay for the cost of repair work. However, if the material is not in compliance, then the Developer shall pay the repair costs.

(c) Substantiation submittals will not be approved or accepted, except to the extent that they are part of documents required to be approved or accepted in order to proceed to the next stage of design or construction. However, approval or acceptance of substantiation will not constitute approval or acceptance of deviations from the specified requirements unless those deviations are specifically identified as such on the submittal.

(d) The Air Force accepts the responsibility to review substantiation submittals in a timely manner and to respond if they are unacceptable.

(e) Where compliance with any substantiation requirement is duplicated by the California Building Code, Appendix A. or by other requirements as defined herein only a single substantiation issuance or performance is required and desired. All resulting individual substantiation requirements shall be conformed with as defined and submitted collectively at a single time, whether it is for Schematic Phase, Design Development Phase, Construction Document Phase, Construction Phase, Acceptance Phase, etc.

(f) In addition to the requirements stated in other chapters, provide the following substantiation of compliance at each stage of the project:

(1) If a substantiation requirement is specified without an indication of when it is to be submitted, submit or execute it before the end of Construction Documents.

(2) As part of the project Quality Assurance program a Technical Review of the Design Documents will be conducted by the Air Force, (or his designee) at the Schematic Design Phase (10% interim design package), at the Design Development Phase (35% design stage), and at the Construction Document Phase (90% design stage). Prior to proceeding with each subsequent design phase the individual review comments of the presently submitted stage will be addressed and responded to by the design team.

(3) Design document submittal requirements shall comply with section 8.0 of this appendix.

(g) Previous Construction: Where elements proven-in-use are used to comply with performance requirements:

(h) During Design Development, identify proven-in-use elements proposed for use, including building name, location, date of construction, contact, and description of design and materials in sufficient detail to enable reproduction in this project.

(i) Mock-Up Testing, aesthetic mock-ups shall be provided for areas as per the requirements of Appendix A.

- Design Analyses (including Engineering Calculations):

(j) Where a design analysis or calculation is specified without identifying a particular method, perform analysis in accordance with accepted engineering or

scientific principles to show compliance with specified requirements, and submit report that includes analysis methods used and the name and qualifications of the designer.

(k) Where engineering design is allowed to be completed after commencement of construction, substantiation may be in the form of shop drawings or other data.

(l) Submit design analyses at the end of Design Development unless otherwise indicated.

(m) Where design analysis is specified to be performed by licensed design professional, use a design professional licensed in the State in which the Project is located.

- Products:

(n) Where actual brand name products are not identified by either the Air Force or the Developer, identify the products to be used.

(o) During Design Development:

(1) Where more than one product type is identified for a particular system, assembly, or element, identify exactly which type will be used.

(2) For each product type, provide descriptive or performance specifications; early submittals may be brief specifications, but complete specifications are required prior to completion of construction documents.

(3) For each product type, identify at least one manufacturer that could be used.

(4) For major manufactured products that are commonly purchased by brand name, and any other products so indicated, provide manufacturer's product literature on at least one actual brand name product that meets the specifications, including performance data and sample warranty.

(p) During Construction:

(1) Identify actual brand name products used for every product, except commodity products specified by performance or description.

(2) Where a product is specified by performance requirements with test methods, and if so specified, provide test reports showing compliance.

(3) Provide manufacturer's product literature for each brand name product.

(4) Provide the manufacturer's certification that the product used on the project complies with the contract documents.

(q) Before End of Closeout:

- Provide copies of all manufacturer warranties that extend for more than one year after completion.

(r) Air Force Furnished Equipment:

(s) Developer shall design & provide single point of connection to Air Force furnished equipment upon receipt of equipment specifications from the Air Force as part of the programming and design development phase. The design-build Developer will familiarize himself with all the Air Force furnished equipment (GFCI) and provide a listing of said equipment to be accepted and incorporated into this project.

(t) Comply in all respects with the specific requirements of Los Angeles Air Force Base SAMS Complex Facility Requirements and Design Guide, Appendix A. Where information appears to address only the partial requirements of a project space or area or where no information appears to be applicable, the Developer will, at a minimum, use as a baseline the replacement in kind of the following project elements:

- (1) Officers Club / Consolidated Club.
- (2) Child Development Center.
- (3) Conference Center.

(u) When a construction standard has been provided as a reference, this should be adhered to as well.

## **4.3 SPACES**

### **4.3.1 Interior Spaces:**

Offices, conference rooms, and other designated spaces located anywhere within the SAMS complex shall be counted towards the overall quantities required by the Air Force as per tables in this section. Program requirements if necessary will be adjusted to fit facility space requirements outlined in table 4.1 and building efficiency defined in 4.2.7. Programming adjacency requirements may be adjusted to maximize efficient use of the Shell and Core building and to avoid excessive circulation requirements such as enlarging of stairwells and addition of fire rated corridors.

While accommodating the various plus-minus quantities within any of the program spaces, any adjustments resulting in a net increase or decrease between hardwall and furniture system offices or the actual quantity of hardwall offices, conference spaces or other program space shall be dealt with by change order

The project includes spaces of the following types:

- (1) "Customer" Contact (SP1 Spaces): Spaces where the occupants meet the public or their customers, including reception desks, display areas, and conferencing.
- (2) Occupant Work (SP2 Spaces): Spaces intended primarily for one worker, including offices and open-office cubicles.
- (3) Equipment Utilization (SP3 Spaces): Spaces where more than one person may use common equipment, including copier rooms, work rooms, computer rooms, mail rooms, and production kitchen.
- (4) Audience (SP4 Spaces): Spaces with fixed seating and projection rooms.
- (5) Assembly (SP5 Spaces): Spaces without fixed seating, including assembly halls, dining and drinking areas, library reading rooms, and multipurpose rooms.
- (6) Meeting and Instruction (SP6 Spaces): Spaces for meeting rooms, conference rooms, and classrooms.
- (7) Occupant Services (SR Spaces): Spaces for toilets, showers, changing and dressing, eating, and cooking.
- (8) Storage (SS Spaces): Rooms devoted to storage, including closets, storage rooms, secure storage, and heavy-weight storage.
- (9) Circulation (SC Spaces): Spaces functioning as corridors, lobbies, waiting areas, vestibules, stairs, and ramps.
- (10) Building Services (SU1 Spaces): Spaces for service sinks, maintenance equipment, trash collection, trash removal, and central loading dock.
- (11) Utility Equipment (SU2 Spaces): Spaces for mechanical equipment, heating equipment, electrical equipment, communications equipment, and elevator equipment.

#### **4.3.2 Exterior Spaces:**

The project includes spaces of the following types:

- (1) Outdoor Occupant Services (SR Spaces): The Developer shall provide for an outdoor area that includes spaces for eating, sitting, and casual gathering. The area shall include hardscape surfaces suitable for this purpose.
- (2) Outdoor Circulation (SC Spaces): Spaces functioning as corridors, lobbies, waiting areas, stairs, ramps, and pedestrian links to Aerospace Corp and rest of Area B.
- (3) Outdoor Utility Equipment (SU2 Spaces): Dedicated spaces for outdoor elements of water and drainage, heating and cooling, fire protection, electrical power, telecommunications, and screened from view services.

(4) Automotive (SV2 Spaces): Spaces for parking private vehicles, access roads, driveways, and passenger loading zone.

**4.3.3 Existing Conditions:**

(a) The proposed project site is identified generally as Area B. Developer shall clearly outline the extent of site development.

(b) The project site is currently occupied by existing structures.

(c) The Developer will demolish the existing Child Development Center (buildings 207 & 208) and clear hardscape improvements on the site.

(d) Other site features that may affect the design or construction include new utility alignment being provided by LA AFB.

**4.3.4 Office Space Requirements:**

SAMS Office space generally falls into two categories, hard walled offices and systems furniture. Hard walled offices are identified as OL-1 through OL-5. Systems furniture offices are identified as SL-1 through SL-3. The distribution and allocation of office space is by rank and position and follows the Air Force guidelines. The following tables summarize each type of office space and tabulates the size, occupancy, and estimated quantity.

**Table 4.1A Office Space Requirements**

Office Space:	Size (Gross Sq. FT.)	Occupant	Quantity	Plus or Minus	Notes:
OL-1 (508 Net SF)	635	LT GEN	1		
OL-2 (428 Net SF)	535	BRIG GEN/SES	12	2	
OL-3 (256 Net SF)	320	2 LTR COL	13	2	
OL-4 (192 Net SF)	240	3 LTR COL	65	10	
OL-5 (120 Net SF)	150	LT COL/GS-14/CMSgt	350	68	1
OL-6 (96 Net SF)	120	MAJ/GS-13/SMSgt	101	25	1
SL-1 (96 Net SF)	120	MAJ/GS-13/SMSgt	354	50	
SL-2 (80 Net SF)	100	CGO/CIV/CONTR/ENL	855	150	
SL-3 (67 Net SF)	80	ADMIN	506	40	
NOTES			2257		

1. OL-5 and OL-6 office count can be adjusted to meet AF requirements but the combined count will not exceed App A total count of 451 OL-5 offices

**Table 4.1B Office Suites.**

	Approx Size (Gross Sq. FT.)	Primary Occupant	General Office/SES	Deputy	Executive Officers	Admin Staff	FAX/Copier/Printer/Storage	Reception Area	Quantity	Notes:
Command Suite	2750	LT GEN	MG	SES	3	3	1	1	1	1,2
OL-2 Suites	1370	BRIG GEN/SES		Col/GS-15	1	2	1	1	12	1,2
OL-3 Suites	1020	2 LTR COL		Lt Col/GS-14	1	2	1	1	13	1,2
Note:										
1. Area to include premium carpeting										
2. Office finish in accordance with Table 7.2										

### 4.3.5 Conference Space Requirements

SAMS Conference space generally falls into two categories, hard walled and systems furniture. Hard walled conference rooms are identified as CL-1 through CL-5. Systems furniture teaming and meeting rooms are identified as SCL-6 and SCL-7. Additionally conference spaces include the Court Room, the Conference Center and the Presentation Room. To maximize the use of the Conference Center and the Consolidated Club the Developer should locate the two spaces next to one another enhancing there functionally. The conferencing center shall accommodate catering services. The distribution and allocation of office space is by organization and follows the Air Force guidelines. The following table summarizes each type of conference space and tabulates the size, occupancy, and estimated quantity.

**Table 4.2 Conference Space Requirements**

<b>Conference Spaces:</b>	<b>Size (Sq. FT.)</b>	<b>Total Occupancy</b>	<b>Quantity</b>	<b>Plus of Minue</b>	<b>Tackable Whiteboard (s.f. of board per room)</b>	<b>Notes</b>
CL-1	1200	50-80	2	1	120	3
CL-2	950	30-40	6	2	95	3
CL-3	850	20-30	6	1	80	3
CL-4	500	16-20	23	3	50	3
CL-5	200	8-10	32	4	30	3
SCL-6	150	4-6	80	13	TBD	2
SCL-7	200	8-10	56	8	TBD	2
Conference Center	18,000	>200	1	0	0	
Presentation Room	5,000	>50	1	0	0	
Court Room	2,020		1	0	0	1
<b>Notes:</b>						
1. Build IAW AF design guide for Court Rooms.						
2. Requirements for Tackboard/Whiteboard TBD during sys. furniture bidding						
3. Tackboard is approx. 1/3 of surface area & whiteboard is approx. 2/3 of wall surface area						

**4.3.6 Training Space Requirements:**

SAMS Training space is generally hard walled rooms. The larger rooms will have the capability of being partitioned into smaller workrooms via furniture systems products. The distribution and allocation of training space is by organization and mission and follows the Air Force guidelines. Reference Table 6-10

**4.3.7 Specialty Space Requirements:**

SAMS Specialty space is generally hard walled rooms. Specialty space includes the common classified workrooms, Scientific Engineering Research Facility (SERF), the Command Post, The Base Communications Center (BNCC aka Satellite Classified Equip Room), the SCIF, the Consolidated Club, the Child Development Center, the photo shop, art services lab and other special purpose rooms. The distribution and allocation of specialty space is by organization and mission and follows the Air Force guidelines. To maximize the use of the Consolidated Club and the Conference Center, the two spaces should be located next to one another enhancing there functionally.

### 4.3.8 Miscellaneous Space Requirements:

SAMS Miscellaneous spaces generally consist of administrative space. Miscellaneous space includes break rooms, reception areas, storage, mailrooms, printer/fax areas...etc.

### 4.3.9 Communications Space Requirements:

SAMS Communications spaces are generally hard walled rooms specifically designed and constructed to support communication equipment and distribution requirements. Communications space includes the Cable Vault or Entrance Facility (EF), Main Distribution Frame (MDF), Telecommunications Rooms (TR), Dial Central Office (DCO), Battery Room, Consolidated Network Control Center (CNCC), Test and Integration Facility (TIF), Equipment Rooms (ER) and Classified Equipment Rooms (CER), and other special purpose rooms. The distribution and allocation of communications space is by organization, mission, and physical building layout and follows the Air Force guidelines referenced in Section 3.0. The following table summarizes each type of communications space and tabulates their size and estimated quantity.

**Table 4.3 Communications Space Requirements**

	Gross Floor Area (Sq. Ft.) (Min)	Quantity	Notes:	Developer Requirement
<b>Communications Space</b>				
Cable Vault (Entrance Facility)	Note 3	1 Per Campus		Yes
Main Distribution Frame (MDF)	500	1 Per Campus		Yes
Telecomm Room (TR)	150	1 Per 10,000 Usable SF	4	Yes
Dial Central Office (DCO)	700	1 Per Campus		Yes
DCO Battery Room	150	1 Per DCO		Yes
Switchboard Operator Room	300	1 Per Campus		Yes
Main Point of Presence (MPOP)	300	1 Per Campus		Yes
Consolidated NCC (CNCC)	10,000	1 Per Campus	1	Yes
Main CLASSIFIED NCC (CER)	1500	1 Per Campus		Yes
Satellite CLASSIFIED Equip. Rm. (CER)	150	1 Per Satellite Building	2	Excl. CDC
<b>Notes:</b>				
1. Of this 10,000 S.F., 2,500 S.F. is for a server room, 2,500 S.F. is for network equipment, 1,500 S.F. is for the TIF, 2,500 S.F. is for an assembly area, and 1,000 S.F. is for a tape library. 2. Any building not containing the Main Classified NCC. 3. Size of entrance facility is dependent on quantity of pairs entering the building. 4. Minimum of one TR per floor. TRs shall be vertically aligned. <b>General:</b> 1. Communications spaces shall meet the requirements of TIA/EIA 569-A.				

#### 4.3.10 Facility Space Requirements:

SAMS Facility spaces are generally hard walled rooms and areas required to support all building occupants. Facility space includes the hallways, rest rooms, storage rooms, electrical and mechanical support rooms and other special purpose rooms. The distribution and allocation of facility space is by occupancy and physical building layout and follows the Air Force guidelines. The following table summarizes each type of facility space and tabulates their size and estimated quantity.

**Table 4.4 Facility Space Requirements**

Facility Space	Size (Sq. Ft.)	Quantity	Notes:
Computer Storage Room	400	1 Per Floor	
File Storage Room	400	1 Per Floor	
Janitor Closet	AR	1 Per Bathroom	1
Electrical Room	AR	1 Per TR	2
Mechanical Room	AR	AR	
Hallway	AR	AR	
Restroom	AR	AR	
Notes:			
AR- As Required			
1. Co-Locate with Bathrooms.			
2. Provide 1 main Electrical Room / building and one satellite Electrical Room / TR Co – Locate with TRs			

## 5. CIVIL AND STRUCTURAL REQUIREMENTS

### 5.1 SITEWORK

#### 5.1.1 Basic Function:

Provide all modifications to the site and site improvements and utilities required for proper functioning of the project and as indicated in the project program.

(a) Sitework comprises the following elements:

(1) Site Preparation: All modifications to the site and grades required for construction of new work and for proper functioning of the project.

(2) Site Improvements: All elements required to provide finished and durable site surfaces, and outdoor improvements described in the project program.

(3) Other Site Construction: Miscellaneous site elements.

(4) Where site elements also must function as elements defined within another element group, meet the requirements of both element groups.

(5) Site paving materials at the entrances to the building shall be of a quality and design that emphasizes the transition from the exterior to the lobby.

(6) Upgrading on-site storm water systems and detention, to Area B to current code, shall be the responsibility of LA AFB. Developer will replace in kind any storm system disturbed or maintain the current capacity and integrity of the storm water system.

(b) Demolition:

(1) During the design/build phase the Developer shall:

(a) Receive authorization from and coordinate with the Contracting Officer prior to beginning demolition;

(b) Provide 7-14 days advance notification in writing for planned interruptions for power, water, gas or communications services

(c) Conduct demolition and removal processes in accordance with Base requirements for hours of operation, ingress and egress, disposal and clean up processes, and all applicable Local, State and Federal laws and regulations.

(d) Prevent damage to identified utilities not scheduled for demolition. If identified utilities are damaged, make repairs to the satisfaction of the Contracting Officer at no cost to the Government. Any repairs needed to unmarked or unidentified utilities will be the responsibility of the Government.

### **5.1.2 Amenity and Comfort:**

(a) Cleanliness: Provide above grade elements, fixtures, and equipment that:

(1) Prevent attraction and adherence of dust and air-borne dirt and soot, and minimize appearance of settled dust and dirt.

(2) Are washed reasonably clean by normal precipitation.

(3) Appearance:

(b) Provide trees, shrubs, lawns, and other vegetation. Landscaping can be used as a screening system at areas that require fire department and utility access for servicing.

(c) Finish site walls, equipment yard enclosures, trash enclosures, and similar utility structures to be compatible with the exterior finish of the building.

(d) Where fencing is provided, match the iron fencing that is the LAAFB standard design or provide a comparable design;

(e) Provide walls high enough to conceal all site equipment from view at equipment, trash, and similar yard areas; and screen those utility areas that can be seen from upper floors with horizontal architectural grillwork or a similar screening device that is compatible with the design of the building. Rooftop "package" mechanical units with skirting can be exposed if the units are monolithically painted with ductwork and major piping (excluding condensate drains) concealed within unit or skirting. Isolated rooftop "mushroom" fans, toilet exhaust fans, exhaust ductwork and equipment atop the CDC do not require enclosure but must be painted to match rooftop stair enclosures and package mechanical equipment. Ground based Electrical transformers will be screened for aesthetic reasons with louvers or vinyl coated chain link fence.

(f) Finished Surfaces:

- Make finished surfaces smooth and uniform in appearance, without depressions that collect water.
- Do not leave soil surfaces exposed in finished work; minimize the amount of time soil surfaces are left exposed.
- If, after consideration of other performance requirements, options remain as to methods of finishing soil surfaces, the Air Force prefers:
  - Landscaping, rather than paving.
  - Water-pervious paving, such as unit pavers on pervious bed, rather than monolithic pavement.

(g) Conceal unsightly site elements from view from the pedestrian walkways.

(h) Substantiation:

- Design Development: Site plans showing methods of achieving appearance requirements; renderings or sketches showing principal views described in requirements.

### 5.1.3 Health and Safety:

Safety:

(a) Provide curbs or similar devices to inhibit the driving of vehicles from roadways and parking areas onto pedestrian walkways and planted areas.

(b) Reasonably Prevent:

(1) Access by unauthorized persons to outdoor areas containing electrical equipment that has exposed powered components.

(2) Unintentional access to the water feature as required by code.

(c) Substantiation:

(1) Construction Documents: Identification of barrier location and type.

(d) Maximum Slopes:

(1) Slopes with Smooth Pavement: 1:20, unless restricted to vehicular use.

(2) Slopes Covered with Grass: 1:5, unless less than 3 feet (1 m) in height.

(3) Slopes with Pedestrian-Inhibiting Vegetation: 1:2, unless less than 5 feet (1.5 m) in height.

(4) Slopes With No Access From Top: Limited only by structural stability and resistance to erosion.

(e) Substantiation:

(1) Design Development: Identification of measures taken; review by authorities having jurisdiction.

(f) Vermin/Animal Control:

(1) Prevent and eliminate standing water that could become stagnant.

(g) Substantiation:

(1) Construction Documents: Identification of physical security measures and locations.

(h) Vehicular Safety: Comply with the code.

(1) Provide visual barriers at extreme changes in elevation near roadways.

(2) Provide tactile and visual warnings where pedestrian walkways cross or run adjacent to roadways.

#### **5.1.4 Structure:**

(a) Earthwork: Provide structural design in accordance with ANSI/ASCE 7 if not otherwise required by code as specified by in Section 3.

(1) Bearing Capacity: Under substructure, paving, and site structural elements, maintain natural bearing capacity or achieve or correct compaction as required to prevent uncontrolled subsidence or other movement.

(b) Substantiation:

(1) Design Development: Engineering design of any structural fills required.

(c) Site Fixtures, Equipment, and Services:

(1) Provide foundations or other mountings as required to support the completed and operational element permanently and safely and without uncontrolled subsidence or other movement.

(2) Design structural elements in accordance with code.

(3) Miscellaneous Site Structures with Floors or Roofs: Designed to comply with same requirements as building superstructure.

(4) Substantiation: Same as required for superstructure.

#### **5.1.5 Durability:**

(a) Weather Resistance of Plants and Turf: Use plants that will withstand extremes of weather likely to occur in this region in any 5 years without supplementary care or servicing. This assumes an irrigation system is installed and maintained according to standard industry practice.

(b) Air Force agrees that maintenance to the level specified by the Developer will be necessary to assure survival of the plants. In addition to normal warranty period, Developer is responsible for a 90-day maintenance period for landscaping.

(c) Exception: Supplementary irrigation is expected during new plant establishment period.

(d) Exception: Turf is required for lawns; supplementary irrigation and fertilization as necessary to maintain health, growth, and appearance is required.

(e) Substantiation:

(1) Design Development: Documentation of the historical extremes and duration of extremes in temperature, rainfall, and drought periods; proven-in-use

documentation on major plant groups to be used, under similar site conditions in the same climatic region; length of time required for full establishment.

(2) Construction Documents: Proven-in-use documentation of all plants used; proven-in-use data may be from actual nearby growing locations or from non-local nursery supplier having plants grown under same climatic conditions.

(3) Closeout: Maintenance requirements of all plants used, for new plant establishment period and subsequent maintenance; length of establishment period for each type of plant.

(4) Occupancy: Report of inspection of plants at end of spring, summer, fall, and winter, beginning with season immediately following planting.

(f) Soil Erosion Resistance: Comply with the code and the following:

(1) Maintain the existing site features that contribute to erosion resistance to the greatest extent possible.

(2) Design to minimize soil erosion.

(3) If erosion occurs during construction and within one year after completion, relocation or replacement of eroded soil and repair of eroded areas shall be performed by the Developer at no cost to the Air Force.

(4) If erosion occurs within one year after completion, provide improved erosion control measures within one week after notification by Air Force.

(g) Traffic Resistance: Provide finished site surfaces that are permanently resistant to the type of traffic to be expected, under local area design standards for weather conditions.

(h) Where vegetated surfaces will not withstand the anticipated traffic, provide pavement or other surfacing.

(1) Prior to the Air Force's approval of the Developer's 10% submittal, Air Force to review site design and add pedestrian walkways where they believe that casual paths of travel will occur.

(i) Vegetation and fencing may be used to discourage pedestrian traffic, if other functional requirements can be met.

(j) Substantiation, Paving and Hard Surfacing:

(1) Schematic Design: Identification of types and thickness of paving and surfacing for various functions.

(2) Design Development: Proven-in-use documentation of paving and surfacing consistent with types of traffic anticipated; manufacturer's data may be submitted for modular paving units.

(3) Construction Documents: Engineering calculations, based on anticipated weights and intensity of traffic.

(k) Flooding:

(1) Control storm water runoff as required to prevent damage to project elements, including vegetation, and to prevent damage to neighboring sites, including vegetation.

(2) Developer to provide a collection system for storm water runoff to include localized catch basins and piping necessary to convey storm water runoff to the existing on-site LA AFB provided storm drain system. See Developer's Final Proposal Revisions.

(3) On-site water detention, to upgrade Area B to current code, shall be the responsibility of LA AFB. Developer will replace in kind any storm system disturbed or maintain the current capacity and integrity of the storm water system.

(4) Meet local code for storm water management.

(l) Substantiation:

(1) Design Development: Engineering design of site drainage, including drainage volume calculations.

(m) Vehicular Collision: Use best efforts in design to minimize the probability of vehicular impact on site fixtures and accidental driving on lawns and landscaped areas.

#### **5.1.6 Operation and Maintenance:**

(a) Water Conservation: Minimize water use.

(b) Substantiation:

(1) Design Development: Irrigation system design for required plant materials; estimated water use, by season and by year; explanation of conservation measures.

(2) Construction Documents: Calculated water use based on final design and irrigation schedule.

(3) Commissioning: Field verification.

### **5.1.7 Flagpoles:**

Three ground set tapered stainless steel seamless 40' high flagpoles, with a tensile strength of 30,000 psi minimum required.

### **5.1.8 Landscaping and Irrigation:**

Refer to the LAAFB General Plan and the AFCEE Design Guide: Landscape Design referenced in Section 2.3 of this document. Developer's allowance for all planting and irrigation systems in landscape areas shall be \$1.80/sf of soft-scape area.

## **5.2 SUBSTRUCTURE**

### **5.2.1 Performance:**

#### (a) Basic Function:

(1) Provide substructure as required to support the completed and occupied building safely and without uncontrolled subsidence or other movement.

#### (2) Substructure comprises the following elements:

- Foundations: Structures responsible for transferring dead loads, live loads, and environmental loads of completed building to the earth in such a way that the building is supported evenly and within design tolerance movement.
- Basements: Space-enclosing elements below grade, including necessary excavation, structural walls and floor, and other elements of enclosure such as waterproofing and thermal insulation (as required by code).
- Other Substructure Elements.

(b) Where substructure is integral with elements defined within another element group, meet requirements of both element groups.

### **5.2.2 Amenity and Comfort:**

(a) Thermal Performance: Provide thermal resistance as necessary to maintain interior comfort levels specified and in accordance with code and the following:

(1) Average Thermal Transmittance: U-value, as required by code, for portions of substructure in contact with earth and enclosing conditioned space.

(2) Condensation: None on interior surfaces under normal interior temperature and relative humidity conditions, during 97-1/2 percent of the days in the

coldest 3 months of the year, subject to the proper operation of the HVAC system in a non-economizer cycle.

(3) Minimum thermal performance values for individual substructure elements are also specified in other chapters.

(b) Substantiation:

(1) Schematic Design: Identification of major thermal resistant materials and systems.

(2) Design Development: Detailed listing of design criteria and design analysis, prepared by licensed mechanical engineer.

(3) Construction Documents: Product data on thermal materials and details of thermal barrier.

(c) Water Penetration: Prevent ground water penetration into the interior of the building, under any circumstances.

(1) Substantiation:

- Schematic Design: Identification of major water resistant assemblies and drainage features.
- Construction Documents: Details of proven-in-use or proven-by-mock-up design.

(d) Water Accumulation: Prevent accumulation of water in crawl spaces or open areas adjacent to substructure.

(1) Substantiation:

(2) Schematic Design: Identification of dewatering methods to be used.

(3) Construction Documents: Details of proven-in-use or proven-by-mock-up design.

(e) Acoustical Performance: Limit sound transmission through substructure as follows:

(1) Ambient Sound Level: Maintain ambient sound levels in enclosed, occupied substructure spaces (except in open office areas) within noise criteria (NC) ranges specified in Section 7.6.2 during normal hours of occupancy.

(2) Vibration Control: Use substructure elements that will not resonate at frequencies that are characteristic of ambient underground sound and vibration sources at the project site.

(f) Minimum performance values for individual substructure elements are also specified in other chapters.

### **5.2.3 Health and Safety:**

(a) Fire Resistance: Design and select materials to provide fire resistance in accordance with code.

(1) For all elements required to have a fire resistive rating and which are not made of materials and systems specified as acceptable by the code, use proven-by-mock-up construction.

(2) For proven-by-mock-up construction, acceptable testing agencies are Underwriters Laboratories Inc.

(3) Minimum performance values for individual substructure elements are also specified in other chapters.

(4) Substantiation:

(5) Design Development: Identification of assemblies required to have fire resistance rating and method to be used to achieve rating.

(6) Construction Documents: Identifying numbers on the construction drawings.

(b) Substance Exclusion: Prevent accumulation of harmful chemicals and gases such as radon and methane in spaces below substructure and subsequent penetration into occupied spaces.

(c) Vermin Protection: Provide permanent protection against infestation of construction by ground dwelling termites and other vermin.

(d) Flood Protection:

- Areas Prone to Flooding and High Velocity Wave Action: Provide substructure supporting lowest habitable floor comprising columns or piers.
- Substructure Enclosing Walls Below Flood Level: Breakaway type, designed to avoid damage to load bearing elements of substructure.

### **5.2.4 Structure:**

(a) Capacity: Provide load bearing substructure members as required by code and designed to distribute dead loads, live loads, and environmental loads so that bearing capacity of soil is not exceeded.

(b) Dead Loads: Accommodate loads from weights of building materials, construction itself, and all fixed service equipment.

(c) Live Loads: Accommodate loads from use and occupancy of the building, either uniformly distributed loads as prescribed by code or concentrated loads, whichever are more demanding structurally.

(1) Uniformly Distributed Loads: 80 psf.

(2) Uniformly Distributed Loads: As required by code for building occupancy.

(3) Concentrated Loads: As required by project program and building design, minimum 3,000 lbs. Any concentrated loads above 3,000 lbs need to be identified by the Air Force prior to structural design. All concentrated loads above 3000 lbs will be on grade.

(d) Environmental Loads: Accommodate loads from all environmental forces in accordance with code and the following:

(1) Lateral Soil Loads: Lateral pressure of soil adjacent to vertical substructure elements, including potential surcharge from fixed or moving loads and potential hydrostatic pressure.

(2) Increase lateral pressure assumptions if expansive soils have been identified by a geotechnical investigation, unless expansive soils are excluded from backfill.

(3) Earthquake: In accordance with applicable code per Section 3.0, References.

(4) Wind: Overturning forces attributable to design wind speed at project location applied to full building height per applicable code as defined in Section 3.0.

(e) Substantiation:

(1) Schematic Design: Soil investigation report, detailed listing of design criteria, and preliminary analysis, prepared by a licensed geotechnical engineer.

(2) Construction Documents: Detailed design analysis by a State of California licensed structural engineer.

### **5.2.5 Durability:**

(a) Corrosion Prevention: Provide supplementary protection for underground metal elements, sufficient to prevent corrosion completely for the service life of the element without maintenance.

(b) If soils are deemed to be corrosive by the geotechnical engineer, 3 inches of Type V concrete cover is considered to be permanent protection.

(c) If required by the geotechnical engineer, provide cathodic protection when any of the following is true: (Coatings or wrappings will not be considered sufficient protection where properly installed elements fail due to corrosive soil conditions).

(d) Metal elements are buried in a soil environment known to cause corrosion on similar nearby structures that have had properly installed coatings or pipe wrap materials and have failed.

(e) Metal elements are buried in a soil environment in which stray DC electrical currents are present.

## **5.3 SHELL**

### **5.3.1 Performance:**

Basic Function:

(a) Provide permanently enclosed spaces for all functional areas shown in the project program, unless otherwise indicated. Provide a physical enclosure that facilitates the prevention of weather intrusion, unwelcome people, animals, and insects without requiring specific action by occupants beyond standard Air Force security measures, while providing convenient movement of occupants between inside and outside, desirable natural light, and views from inside to outside. Provide level floor areas, comfortable ceiling heights, and essentially vertical walls.

(b) The elements forming usable enclosed space and separating that space from the external environment comprise the shell and consist of:

(1) Superstructure: All elements forming floors and roofs above grade and within basements, and the elements required for their support, insulation, fireproofing, and firestopping.

(2) Exterior Enclosure: All essentially vertical elements forming the separation between exterior and interior conditioned space, including exterior skin, components supporting weather barriers, and jointing and interfacing components; not including the interior skin unless an integral part of the enclosure.

(3) Roofing: All elements forming weather and thermal barriers at horizontal and sloped roofs and decks, and roof fixtures.

(4) Other Shell Elements.

(c) Exterior Surfaces Exposed to View: Surfaces visible from street or ground level, plus surfaces visible from windows of same building and adjacent existing buildings.

(d) Where shell elements also function as elements defined within another element group, meet requirements of both groups.

### **5.3.2 Amenity and Comfort:**

(a) Thermal Performance: Provide construction that will have thermal resistance as necessary to maintain interior comfort levels specified and in accordance with code and the following:

(1) Energy Efficiency

(2) Condensation: None on interior surfaces under normal interior temperature and relative humidity conditions, during 98 percent of the days in the coldest 3 months of the year, subject to the proper operation of the HVAC system.

(3) Components That Have Surfaces Facing Both Interior and Exterior Environment: Condensation Resistance Factor (CRF) as required to meet requirement above, when tested in accordance with AAMA 1503.1.

(4) Minimum thermal performance values for individual shell elements are also specified in other chapters.

(5) Substantiation:

- Schematic Design: Identification of major thermal resistant materials and systems.
- Design Development: Detailed listing of design criteria and design analysis, prepared by licensed mechanical engineer.
- Construction Documents: Product data on thermal materials and details of continuous thermal barrier.

(b) Water Penetration: Design and select materials to prevent water penetration into the interior of the building, under conditions of rain driven by 50 mph wind.

(c) Acoustical Performance: Design and construct the shell to limit sound transmission as listed below:

(1) Ambient Sound Level: Maintain ambient sound levels in perimeter and interior spaces during normal hours of occupancy and within ASHRAE standards. In the SCIF space and the SECRET open storage, the appropriate security standards will take precedence. In open office areas, special sound attenuating devices are not required; however, sound engineering practices should be used to minimize noise transmission.

(2) Vibration Control: Use shell elements that will not resonate at frequencies that are characteristic of ambient exterior sound sources at the project site.

(3) Minimum performance values for individual shell elements are also specified in other chapters.

(d) Cleanliness of Exterior Surfaces: Design and select materials to:

(1) Prevent attraction and adherence of dust and air-borne dirt and soot, and minimize appearance of settled dust and dirt.

(2) Minimize precipitation from washing settled dust and dirt over surfaces exposed to view.

(e) Appearance: Design and select materials to provide exterior appearance with characteristics as follows:

(1) Compatible with adjacent buildings on same campus.

(2) Matching the materials on the existing building or the Air Force's descriptions of the appropriate materials in Appendix A.

(f) Providing a contemporary architectural style as described in Appendix A and the Developer's Final Proposal Revisions.

(g) Concealing mechanical equipment, plumbing equipment, electrical equipment, and piping, conduit, and ducts from view from the street. Rooftop "package" mechanical units with skirting can be exposed if the units are monolithically painted with ductwork and major piping (excluding condensate drains) concealed within unit or skirting. Isolated rooftop "mushroom", toilet exhaust fans, exhaust ductwork and equipment atop the CDC do not require enclosure but must be painted to match rooftop stair enclosures and package mechanical equipment.

(h) Substantiation:

(1) Schematic Design: Drawings showing facade treatment for principal elevations identifying visible materials.

(2) Design Development: Drawings and artist's rendering showing all building elements that are part of the shell with sizes and locations to scale.

(3) Construction Documents: Details of building shell, annotated to show compliance with performance requirements.

(i) Explosion: Design and construct shell in a manner to provide relief from explosion hazards so as to minimize the effect on occupants and structural members per Air Force standards.

### 5.3.3 Structure:

(a) Structural Performance: Design and select materials to support all loads without damage due to loads, in accordance with code.

- Special Loads: In addition to loads defined by code, design for loads from moving machinery, elevators, cranes, vehicles, and project Force Protection criteria.
- Special Components: If design method is not specifically prescribed by code, design in accordance with ASCE 7.
- Design and provide shell elements to resist loosening or detachment in winds equivalent to the code design wind speed.
- Shell elements engineered by their manufacturer or fabricator, rather than by the engineer-of-record, shall comply with the following additional requirements:
- Manufacturer/fabricator employs licensed structural engineer to accomplish design of structural elements.

(b) Substantiation:

(1) Schematic Design: Detailed listing of design criteria and preliminary analysis, prepared by a licensed structural engineer.

(2) Construction Documents: Detailed design analysis by a State of California licensed structural engineer.

(3) Construction Documents: Detailed design analysis by a State of California licensed structural engineer (for structures engineered by their manufacturer or fabricator, engineer-of-record may provide detailed design criteria, with design analysis postponed until construction stage).

(4) Construction: For structures engineered by their manufacturer or fabricator, detailed design analysis prepared by and shop drawings stamped by a licensed structural engineer, with approval of engineer-of-record recorded.

(c) Construction Loads and Erection Stresses: Accommodate temporary construction loads and erection stresses during construction.

### 5.3.4 Durability:

(a) Service Life Span: Same as building service life, subject to industry standard maintenance, except as follows:

- (1) Load-Bearing Structural Members: Minimum of 50 years.
  - No anticipated deterioration when protected as specified.

- Protective Elements (Fire proofing): Minimum 25 years.

(2) Wall Primary Weather-Barrier Elements: Minimum 50 years functional and aesthetic service life, excluding joint sealers.

(3) Joint Sealers: Minimum 20 years before full-scale replacement.

(4) Surfaces Exposed to View: Minimum 20 years aesthetic service life; in addition, deterioration includes color fading, crazing, and delamination of applied coatings per criteria below.

(5) Roof Covering Weather-Barriers: Minimum 20 years, fully functional with industry standard maintenance and inspection.

(b) Water Penetration: Design and select materials to prevent water penetration into the interior of shell assemblies as described by code.

(c) Weather Resistance: Design and select materials to minimize deterioration due to precipitation, sunlight, ozone, normal temperature changes, salt air, and atmospheric pollutants.

(1) Deterioration includes corrosion, shrinking, cracking, spalling, delamination, abnormal oxidation, decay and rot.

(2) Surfaces Exposed to View: Deterioration adversely affecting aesthetic life span includes color fading, crazing, and delamination of applied coatings.

(3) Joint Components and Penetration Seals: Capable of resisting expected thermal expansion and contraction; use overlapping joints that shed water wherever possible.

(4) Transparent Elements (Glazing): Haze, loss of light transmission, or color change, during entire expected service life beyond that listed below.

- Test Criteria: Less than 1 percent change in haze, transmission, and color within 2 years of exposure, when tested after natural exposure conditions or accelerated light and water conditions simulating natural exposure at project, in accordance with ASTM D 1003; accelerated exposure documented with comparison to natural conditions.

(d) Service Temperature: Low temperature equal to historically-recorded low; high temperature equal to that expected due to any combination of air temperature and heat gain from solar and other sources.

- (e) Freeze-Thaw Resistance: Adequate for climate of project.
- (f) Corrosion Resistance: In locations with exterior exposure to the outdoor air or in probable contact with moisture inside shell assemblies, use only corrosion-resistant metals or metals with corrosion-resistant finishes as defined in Section 7.4.5.
- (g) Ozone Resistance: Do not use materials that are adversely affected by ozone.
- (h) Substantiation:
  - Design Development: Details of proven-in-use materials and test reports.
- (i) Impact Resistance: Design and select materials to resist damage due to impact in accordance with code.
- (j) Moisture Vapor Transmission: Design to prevent deterioration of materials due to condensation of moisture vapor inside assemblies.

### 5.3.5 Roofing:

- (a) Standing seam metal:
  - Have factory applied finish;
  - Be warranted for 20-years;
  - Be colored as indicated elsewhere in this solicitation document; and
  - Have the underside and sides of the metal roof system concealed.
- (b) Bituminous roofing:
  - Concealed roof drains and overflow drains;
  - Warranted for 20 years;
  - Be low emissive; and
  - Single-ply membrane or foam type systems are prohibited.

Roof drainage and overflow systems shall not be allowed to stain the exterior of the building envelope. Roof drains shall be routed to an underground drainage system, while overflow drain discharge shall be installed in a visible location at the base of the building to "notify" maintenance staff to a problem condition. Any roof mounted equipment that is visible from the building or neighboring structures shall be screened with materials compatible with the building. Rooftop "package" mechanical units with skirting can be exposed if the units are monolithically painted with ductwork and major piping (excluding condensate drains) concealed within unit or skirting. Isolated rooftop "mushroom" fans, toilet exhaust fans, exhaust

ductwork and equipment atop the CDC do not require enclosure but must be painted to match rooftop stair enclosures and package mechanical equipment.

- (c) During the design/build phase the Developer shall submit:
  - Manufacturer's catalog data indicating; material, fastenings, proposed method of flashing, anchoring, and other related items; and
  - Testing requirements for all items of the proposed work.

### **5.3.6 Exterior Materials and Finishes Submittals and Requirements**

(a) During the formal design process, the Developer shall submit samples of the materials to the Air Force for approval. Samples will be of sufficient size to determine the appearance of the wall and in accordance with generally accepted industry practices for office projects.

- (b) During the design/build phase the Developer shall submit:
  - Manufacturer's catalog data of windows, finish, hardware, and
  - Samples of material, finish, and color.

- (c) The Developer is required to:
  - Use a manufacturer having not less than five years experience in the manufacturing of the exterior building systems
  - Use installers who are factory (manufacturer) trained with a minimum of five years of experience;
  - Provide windows and doors with a minimum service life of 25 years; and
  - Construct 6' x 8' minimum architectural mock-up panels on-site of each major exterior building system.

## **5.4 SERVICES**

### **5.4.1 Performance:**

Basic Function:

- (a) Provide the following services:
  - (1) Water and Drainage: Means of delivery of water to points of utilization; automatic heating and conditioning of domestic water; and unattended removal of water, rainwater, and liquid waste.
  - (2) HVAC: Artificial means of maintaining interior space comfort and air quality, including heating, cooling, ventilation, and energy supply.

(3) Electrical Power: Electrical distribution systems to transmit energy to operate all electrically-operated devices, including those included under other services and those provided separately by the Air Force within Exhibit E, the FF&E matrix.

(4) Artificial Lighting: Means of illuminating spaces and tasks, both interior and exterior, independent of reliance on natural light.

(5) Developer shall recommend appropriate methane gas containment, collection, or mitigation as they determine is required by site conditions.

(b) Utility Sources and Outlets:

(1) Water Source: Existing onsite utility main. Work with the LA Air Force Base as necessary to coordinate required service for this project.

(2) Sewage Disposal: Connect building sewer to the existing on-site sewage system.

(3) Work with the LA Air Force Base as necessary to coordinate required service for this project.

(4) Rain Water Drainage Outlet: Existing site storm drainage system independent of sanitary sewer.

(5) Electrical Power Source: Existing site utility.

(6) All utilities shall be connected to on-site Air Force mains.

(c) Where services elements must also function as elements defined within another element group, meet the requirements of both element groups.

(1) Where services elements are located outside the building in the site area, meet applicable requirements.

#### **5.4.2 Amenity and Comfort:**

(a) Artificial Illumination: Provide illumination for all interior spaces that is adequate in level and quality for comfortable performance of tasks typical for each space, regardless of the availability of natural light.

(1) Light Levels: Provide maintained ambient illuminance values for various activities that are within the ranges specified in the IESNA Lighting Handbook. In addition comply with Title 24.

(2) Accent Lighting: In addition to general and task illumination, provide interior lighting on architectural features, displays, and artwork in focal (reception areas, lobbies, elevator lobbies, Consolidated Club, etc.) areas to produce luminance's that are within the range of 5:1 with respect to ambient background.

(3) Substantiation:

- Design Development: Overall lighting scheme, including types of luminaires and lamps for primary spaces.
- Construction Documents: Calculations of illuminance levels for representative spaces, prepared by a registered electrical engineer.
- Construction: Measurements of luminance and illuminance levels for representative spaces throughout the project, with a report setting forth results after correcting for maintenance factors keyed to luminaire design and lamp types.

(b) Equipment Producing By-Product Heat: Ventilate housings and cabinets as required by equipment manufacturer and rooms and spaces as required to maintain specified environmental conditions.

(c) Moisture: Prevent condensation from forming on service elements.

(d) Airborne Sound:

(1) Maintain the sound transmission characteristics of assemblies through which services must pass; comply with requirements of chapter where penetrated assembly is specified.

(2) Prohibited Plumbing Noises: All restrooms will have an STC-50 rated walls.

(3) Equipment Noises: Sound levels in occupied spaces will be maintained within ASHRAE level guidelines.

(4) When services are located within assemblies that perform sound isolation functions, consider the noise produced by the service itself as one of the external sound sources.

(e) Structure-Borne Sound and Vibration: Prevent transmission of perceptible sound and vibration from services equipment that rotates, vibrates, or generates sound, by isolating such equipment from superstructure or by isolating equipment support foundations from building foundations.

(1) Substantiation:

(2) Schematic Design: Identification of sound- and vibration-generating equipment and method of isolation.

(3) Construction Documents: Details of isolation methods.

(4) Closeout: Measurement of sound transmitted through structure during functional performance testing and during full operation of all systems.

(f) Cleanliness: Prevent accumulation of debris and dirt at floor mounted equipment, such as air handlers, chillers, pumps, switchgear, and panel boards by one or more of the following methods.

(1) Provide 4 inch thick, concrete housekeeping pads.

(2) Provide corrosion-resistant equipment stands and/or corrosion resistant finishes.

(g) Odors: Eliminate, isolate, or exhaust odors produced by defined occupant functions and building services to the extent required by code.

(h) Appearance:

(1) Conceal services elements from view to greatest extent possible, with exposed portions of simple, neutral design and color.

(2) Exception: Standard designs of manufacturers, without consideration for appearance, may be used for fire suppression sprinkler heads.

(3) Exception: Exposed portions are acceptable in SU1, SU2, SV2, and enclosed stairway areas and as per Table 5.1.

(4) Where exposed portions are acceptable, do not obstruct or diminish clear dimensions of doorways, windows, other operable openings, access panels and cabinet doors, or passageways, stairs, and other exit ways.

(5) Where exposed piping is acceptable, install it close to walls and overhead structure, parallel and square to finished construction, plumb and nominally horizontal (except where required to slope for drainage).

(i) Cover annular spaces around pipes, ducts, and conduits, where they pass through walls, ceilings, and floors with escutcheons or cover plates.

(1) Exception: Escutcheons not required in SU1, SU2, and enclosed stairway areas, provided annular spaces are filled completely. See Table 5.1.

(2) Mountings: On finished surfaces, use concealed attachments with cover plates, frames, or trim overlapping finishes.

### 5.4.3 Health and Safety:

(a) Fire Safety:

(1) Maintain fire resistance of walls, floors, ceilings, and other fire-rated assemblies that services must pass through, in accordance with code requirements listed in Section 3.0.

(2) Provide fire-rated separations between equipment rooms and other spaces where required as specified by code requirements of Section 3.0.

(3) Combustible pipes may be used only where buried if outside building.

(4) Substantiation for Combustible Materials, Where Allowed: UL listed or labeled, with flame spread and smoke developed ratings printed on product.

(5) Provide products that are fire-rated for the specific locations where they are installed.

(6) The fire protection (sprinkler) zones, the fire alarm zones, the mechanical fire and smoke damper locations, the architectural rated wall design, will all coincide into a single set of compartmentalization for the entire project. All the systems will incorporate electronic detection (if they do not already) and report to the Building Automation System. Specifically all points of the fire alarm system and all alarm points of the fire protection system will report to the BAS.

(b) Safety Hazards: Avoid safety hazards wherever possible; where services must involve flammable materials or hazardous operations, comply with code.

(c) Excess Pressure: Design pressurized components to withstand operational pressures without failure and to relieve or reduce excessive pressure to prevent failure.

(d) Misuse: Design systems that minimize the potential for the accidental misuse of equipment that could result in damage to property, injury, or loss of life.

(e) Electric Shock: Provide equipment which protects personnel from electrical shock per CEC and excluding environmental static.

(f) Toxic Materials:

(1) Lead: Do not use lead or lead-containing materials in potable water systems.

(2) Lead: In solid materials (including pipe), maximum lead content of 8 percent; in solders and flux, maximum lead content of 0.2 percent.

(g) Vermin Resistance: Use components that are resistant to the entry of rodents and insects.

(h) Flooding: Flood zone applicability.

#### **5.4.4 Structure:**

(a) Supports for Piping, Conduit, Ducts, and Components: Attached to, and supported by, the superstructure, not to or by non-structural construction or sheet metal elements, so that they do not move or sag, as per code.

(b) Substantiation:

Design Development: Details of supports, including engineering analysis.

(c) Structural Design of Components and Their Supports: In accordance with code.

(1) Safety Factor for Component Structural Elements: code required; safety factor; based on weight (mass) of component.

(2) Anchors: Securely and positively attach all services components to superstructure.

(d) Concealed or Buried Components: Design cover or concealment so that components are not subjected to damaging stresses due to applied loads.

#### **5.4.5 Durability:**

(a) Expected Service Life Span (with industry standard maintenance): Same as the service life of the building, except as follows:

(1) Ducts, Piping, and Wiring in All Services: 50 years.

(2) All Components Permanently Installed Underground or Encased in Concrete: Same as service life of building.

(3) Conveying Systems: Minimum 20 years.

(b) Plumbing:

(1) Shut-Off Valves and Similar Components: Minimum 25 years.

(2) Electrically- and Fuel-Operated Equipment: Minimum 20 years.

(3) Other Moving Components: Minimum 20 years.

- (4) Plumbing Fixtures: 50 years, except showers, 15 years.
- (5) Sink Faucets, But Not Other Fittings: Minimum 10 years.

(c) HVAC

- (1) Shut-Off Valves: Service life -10 years.
- (2) Dampers, Louvers, Registers, Grilles: Same as service life of building.
- (3) Main Heat Generation and Cooling Equipment: Service life - 20 years.
- (4) Secondary Equipment: Service life -10 years.
- (5) Control Components, Except Wiring: Service life -10 years.

(d) Fire Protection:

- (1) Sprinkler Heads, Valves, and Other Inlet and Outlet Components: Sprinkler Heads 25 years, Valves 10 years

(e) Electrical:

- (1) Power Distribution Equipment: Service life - 30 years.
- (2) Power Generation Equipment: Minimum 20 years.
- (3) All Components of Life Safety-Related Systems: Minimum 20 years.
- (4) Control Components, Except Wiring: Minimum 10 years.
- (5) Lighting Fixtures: Minimum 15 years.
- (6) Telecommunications Systems: Minimum 10 years.
- (7) Integrated Facility Controls: Minimum 15 years.
- (8) Security and Surveillance Controls: Minimum 15 years.
- (9) Lightning Protection and Special Grounding Systems: Same as building service life.
- (10) Software and Firmware Integral to Operation of Services Equipment: Minimum 20 years functional life without reprogramming required, and specifically, unaffected by millennium date changes.

(f) Weather Resistance:

(1) All components exposed to outdoor environment must comply with applicable codes; equipment enclosures are considered the equivalent of the exterior enclosure.

(2) Liquid Storage and Distribution Components: Prevent freezing during longest duration of low temperature anticipated, based on historical weather data; if necessary, provide automatically controlled supplemental heating.

(3) Services Passing From Inside to Outside: Openings through shell sealed as required to meet performance specified.

(g) Condensation: Provide insulated drain pans and piping to remove condensation from cooling coils.

(h) Moisture Resistance: Where components are mounted to surfaces that are required to be moisture-resistant, seal mounting surface of components to finish surface so that moisture cannot penetrate under or behind component, using material that is not affected by presence of water, that is mildew-growth resistant, and that has a minimum service life of 10 years.

(i) Temperature and Humidity Endurance: Design equipment to endure temperature and humidity that will be encountered and to resist damage due to thermal expansion and contraction.

(j) Corrosion Resistance: Prevent corrosion by using corrosion-resistant materials, by preventing galvanic action, by preventing contact between metals and concrete and masonry, and by preventing condensation on metals.

(k) Metals Considered Corrosion-Resistant: Aluminum, stainless steel, brass, bronze, cast iron, ductile iron, malleable iron, hot-dipped galvanized steel, chrome-plated steel, cadmium-plated steel, and steel coated with high-build epoxy, coal tar-based paint, or a factory applied corrosion resistant and rust inhibiting paint.

(l) Piping Connections for Piping of Dissimilar Metals: Dielectric adapters.

(m) Underground Elements: Provide supplementary protection for underground metal pipes, ducts, conduits, and tanks, sufficient to prevent corrosion completely, for the service life of the element without maintenance.

(1) 3 inches of concrete cover is considered to be permanent protection.

(2) Bituminous or other waterproof coating or wrapping is considered permanent protection unless cathodic protection is required and unless underground element is subject to movement due to structural loads or thermal expansion or contraction.

(3) Provide cathodic protection if any of the following is true; coatings or wrappings will not be considered sufficient protection for elements falling under these criteria:

(4) Metal elements are submerged or buried in a soil environment known to cause corrosion on similar nearby structures that have had properly installed coating or wrapping protection.

(5) Metal elements are submerged and buried in a soil environment in which stray DC electrical currents are present.

(6) Metal piping carrying petroleum products or other hazardous or toxic materials is buried or otherwise installed without means of visual observation of entire exterior surface of piping.

(7) Metal tank holding petroleum products or other hazardous or toxic materials is buried or otherwise installed without means of visual observation of entire exterior surface of tank.

(n) Accidental Water Leakage: Locate major MEP components that would be damaged by water leakage from pipes or through foundations or roof out of likely paths of water and at least 4 inches above floor level.

(o) Abuse Resistance:

(p) Buried Components: Minimum of 12 inches below surface of ground outside of building line.

(q) Underground Piping and Conduit: Designed to inhibit damaging infiltration by water and roots.

(r) Finishes on Exposed Components Subject to Touching by Occupants: Durable enough to withstand regular cleaning using ordinary methods.

(s) Accidental Damage: Design equipment and piping systems that minimize the potential for accidental damage.

#### **5.4.6 Operation and Maintenance:**

(a) Capacities defined as follows:

(1) Water and Drainage: As required by code.

(2) Heating, Cooling, and Ventilating: Maintain interior environment within ranges specified.

(b) Design HVAC to provide partially redundant systems as described within the Mechanical Requirements Section.

- (1) Fire Suppression: As required by code.
- (2) Electrical: As required by code.
- (c) Power: Critical systems to be on Emergency Power Supply
  - (1) Substantiation:
  - (2) Design Development: Engineering calculations showing input- and output-side capacities and loads and sizes of distribution elements.
  - (3) Construction Documents: Complete system details.
  - (4) Construction and Closeout: Functional performance testing.
- (d) Ease of Use:
  - (1) Access: All mechanical and electrical equipment located to allow access as per code. Provide access doors for equipment accessed through walls, partitions, or fixed ceilings
  - (2) Valves and Other Control Devices: Accessible handles, switches, control buttons; valve handles on top/upper side; chain or other remote operators where located out of normal reach (with an 8 ft. ladder) above floor level in SU1 and SU2 spaces.
  - (3) Space Around Components: Working clearances and access routes as required by code and as recommended by component manufacturer.
  - (4) Testing: After completion of installation, prepare services for starting-up by testing appropriately for proper operation.
  - (5) Commissioning: As part of the Project Quality Assurance program, commissioning will represent the establishment and implementation of QA procedures across all phases of the Project. The commissioning authority will be the Air Force or his designee and will plan, coordinate, witness, and approve the QA process throughout the Project. The Developer is responsible for the design and construction, installation completion, and system troubleshooting of all building systems. In addition the Developer shall demonstrate all building systems verifying their performance and their collective interaction. Specifically during the construction and acceptance phases. The Developer shall prepare building for Air Force use by eliminating operational anomalies, adjusting control systems for optimum operation, and demonstrating proper equipment and system performance. The GSA/DOE Commissioning Guide defines the commissioning process and the functional performance verifications (demonstrations). The Developer, therefore, shall consider the Guide an adopted criterion for this Project.

(6) Substantiation:

- Design Development: Identification of systems and equipment to be tested and method of test.
- Construction Documents: Complete the performance verification test demonstration and training portions of the commissioning plan.
- Construction Phase: Provide draft copies of O & M manuals within 180 days of construction commencement. The Developer, the design team, and the commissioning authority will then review and return these with comments and edits. No later than 180 days prior to substantial completion, the final submission of the O & M's will be due. Submit O & M's both as an electronic copy and in hard copy. Compile electronic copy entirely in Adobe Acrobat complete with a Table of Contents. Submit electronic copy on a CD (or CD's).
- Acceptance and Closeout: Complete all performance verification demonstrations and submit reports to the commissioning authority. Invite the Air Force operating staff to participate, at their discretion, during the verification demonstrations as an initial introduction to their formal training of the equipment and systems.

(e) Post-occupancy: Perform all seasonal verification demonstrations within the first year of occupancy that could not be conducted during the time of project completion and start-up occupancy.

(f) Preparation for Operation: Provide assistance for the Air Force's preparations for operation, as follows.

(g) Demonstration of all services to Air Force personnel is required for verification of the intended performance of the associated equipment and systems. Retesting and subsequent demonstrations, in the event performance does not meet intent, will be necessary until Developer can successfully demonstrate compliance with Project intent.

(h) Training Air Force personnel in the operation of all service systems.

(1) Coordinate with Air Force staff in order to provide training as necessary in order to include personnel that work on second and third shifts.

(2) Provide the Air Force with videotape records of the training sessions in order to that the Air Force may train future staff that become employed or site located following the physical completion of the Project.

(3) Substantiation:

- Construction Documents: Schedule of demonstrations.
- Construction Documents: Training plan and schedule.
- Acceptance and Closeout: Documentation of training conducted.

(i) Ease of Cleaning: Where not otherwise specified, design equipment mountings with house keeping pads to allow easy cleaning around and under equipment, where applicable.

(1) Provide equipment with removable access panels to allow cleaning.

(2) Ease of Maintenance and Repair:

(j) Piping Other Than Gravity Drains: Provide means of isolating convenient portions of piping system, so that small portions may be shut down leaving the remainder in operation and so that drainage of the entire system is not required to enable repair of a portion of it.

(1) Piping: Entire systems drainable without disassembly of piping.

(2) Above Ground Piping: Labeled to identify contents and direction of flow, each shut-off valve, each piece of equipment, each branch take off, and at 20 ft maximum spacing on exposed straight pipe runs.

(3) Equipment in Piping Systems: Each unit provided with a union or flanged connector at each pipe connection to allow easy removal excluding reheat and fan coils.

(k) Ease of Equipment Service:

(1) Lighting: Adequate for locating and operating equipment; emergency lighting for critical components.

(2) Parts Having Service Life Less Than That Specified for Element: Replaceable, without de-installation or de-mounting of the entire element, component, or equipment item.

(3) Valves: Shall be installed for easy removal and/or replacement.

(4) Parts: Readily available from stocking distributors within 50 miles of project location.

- (5) Substantiation:
- Close-Out Documents: Identification of parts normally replaced during routine maintenance and parts replaced only when damaged or unexpectedly worn out; location of stocking distributors.
  - Ease of Equipment Removal: Provide doors and corridors large enough for removal of major pieces of equipment, such as, chillers, and boilers.
- (6) Substantiation:
- Schematic Design: Identify locations of major pieces of equipment.
  - Design: Submit the measurements of the major pieces of equipment and the path for removal from the building. Verify doors and corridors provide adequate clearance for removal of equipment.
  - Construction Documents: Indicate sizes of doors and corridors used for removal of equipment. Indicate equipment sizes.

## **5.5 DOMESTIC WATER AND DRAINAGE**

### **5.5.1 Performance:**

#### Basic Function:

(a) Provide delivery of hot and cold domestic water to points of utilization and the removal of water, rainwater, and liquid waste. Where any conflict or ambiguity seems apparent between the directions and/or definitions as described herein and Appendix A view the directions and/or definitions of Appendix A as having precedence. Furthermore, for issues described as having to be "Considered" in one document and "Required" in another, the term "Required" shall have precedence.

(b) Water and drainage elements comprise the following:

- (1) Water Supply: Water sources and storage.
- (2) Plumbing Fixtures: All fixtures necessary for sanitation, occupancy, and use, that are connected to water supply or drainage; not including water heating or conditioning equipment or kitchen appliances.
- (3) Domestic Water: All elements required to distribute water to fixtures, including piping and equipment for water cooling, heating and storage.
- (4) Sanitary Waste: All elements required for removal of sanitary waste, including piping, venting, discharge and disposal, and equipment.

(5) Rain Water Drainage: All elements required for drainage of rain water from building areas in which it may accumulate and drainage of clear wastes from building services; not including gutters and downspouts or subdrainage (A).

(6) Other Water and Drainage: Services elements required for decorative water effects.

(c) Where plumbing elements also must function as elements defined within another element group, meet the requirements of both element groups.

### **5.5.2 Amenity and Comfort:**

(a) Hot Water Supply:

- Provide pressure balanced shower valves which limit the water temperature to 120 deg F 49 deg C).
- Provide a master thermostatic mixing valve which limits the hot water supply temperature to 120 deg F 49 deg C).

(b) Noise:

- Design to prevent noise due to air trapped in piping systems.
- Insulate risers or locate vertical portions of risers in dedicated and sound attenuated chases or walls.
- Minimize noise produced by fixtures.

(c) Convenience:

- Fixture Heights: As specified in code.
- Fixture Configurations: As specified in code.
- Water Connections: Hot water on the left side of fixtures and cold water on the right side of fixtures.

(d) Odors:

- Locate odor producing elements in areas separate from human occupancy in dedicated equipment rooms.
- Do not locate sanitary waste vent openings where odors are noticeable by occupants or by occupants of adjacent properties or where odor-bearing air may enter building spaces.
- Connect fixtures to prevent entry of sewer gases into occupied spaces.

- (e) Appearance:
  - Vents: Conceal vents from view. Except in areas with exposed structure as per Table 5.1

### 5.5.3 Health and Safety:

- (a) Health: Provide potable water.
  - Public utility water can be considered to be potable.
- (b) Waste Disposal: Connect each fixture to sanitary drainage system for proper disposal of waste and harmful materials.
- (c) Pressure Control: Control pressures to protect the building, fixtures, equipment, and occupants from harm.
  - Maximum Water Distribution Working Pressure: 80 psi.
  - Pressure Reduction: Use pressure reducing valves or regulators.
  - Air Removal: Remove air trapped in water distribution system.
- (d) Prevention of Sewer Gas Leaks:
  - Provide waste system vents as required by code to avoid trap siphonage or compression.
  - Prevent the entry of sewer gases from the site sanitary sewer system into building's sewer system.
- (e) Protection of Potable Water Supply: As required by code.
- (f) Waste Drainage: Provide Point of Connection for food handling equipment, food storage equipment, commercial dishwashing, drinking fountains, and water coolers with direct waste pipe for drainage.
- (g) Water Scald Hazards:
  - Maximum Fixture Discharge Temperature: 120 degrees F.
  - Maximum Exposed Surface Temperature: 105 deg F.
- (h) Fire Hazards:
  - Do not use combustible piping materials inside the building.
  - Terminate combustible piping entering the building within 5 feet of penetration.

(i) Hazard Labeling: Clearly label domestic hot water, domestic cold water, rain water drainage, and sanitary waste and vent systems indicating the nature of contents and direction of flow.

- Conform to requirements of ANSI/ASME 13.1.

(j) Hazardous Material Drainage: Prevent damage to public utility drainage systems by removing or neutralizing hazardous materials before discharging. The Air Force will not knowingly dump hazardous waste into the sanitary sewer storm drain. There are no specific hazardous material treatment systems required.

#### **5.5.4 Structure:**

Insulated Pipes: Prevent compression of insulation by using pipe shields or saddles or dense insulation inserts.

#### **5.5.5 Durability:**

(a) Joint Durability: Provide watertight joints.

(b) Electrical Component Protection:

(1) Do not route piping through electrical rooms, switchgear rooms, transformer vaults, and elevator equipment rooms unless it is absolutely necessary.

(2) Where piping must be routed over major electrical distribution equipment, shield the electrical equipment with drip pans which drain to the nearest floor drain, as per code requirements.

- Substantiation: See tests specified under Operation and Maintenance.

(c) Equipment Protection:

- Domestic Water Distribution System: Provide a strainer upstream of equipment which may be damaged by debris in the distribution system.

(d) Maximum Discharge Temperature into Sewer: 120 degrees F.

#### **5.5.6 Operation and Maintenance:**

(a) Capacity of Water Service: Provide adequate water flow and pressure to supply peak demand requirements. Comply with requirements specified in the code.

(b) Water Delivery: If the water source has insufficient flow or pressure, provide means of increasing to required level, Air Force to provide water supply loop system sufficient to supply water pressure without fire and booster pumps.

(1) Provide a minimum of two hot water return loops per floor for continuous hot water delivery and ease of operation and maintenance. Propose the most effective and economic sizing, location, and quantities as deemed necessary for the specific requirements of each area served.

(2) Substantiation:

- Design Development: Identification of pressure and flow requirements (design conditions) for the building; verification of source availability at design conditions.
- Construction Documents: Equipment to be used to deliver water at design conditions; submit pump curves.
- Construction: Test of system flow and pressure; submit report verifying performance.

(c) Water Flow:

- Maximum Velocity: 8 fps at the design flow rate.
- Provide shock absorber devices, not air cushions, at each group of flush valves and water hammer arrestors at lavatory line-ups.

(d) Water Supply Pressures:

- Service Main Working Pressure: 80psi at 75 deg F. Verify capabilities of existing site utility loop.

(e) Water Distribution Working Pressure: 80 psi at 75 deg F.

- Substantiation:

(f) Schematic Design: Analysis and documentation of water supply source and flow conditions.

(g) Design Development: Piping design calculations and entrance locations.

(h) Construction: Prior to installation of plumbing fixtures and prior to concealment of piping, water tests of piping systems at 110 percent of operating pressure, maintaining pressure for 24 hours to demonstrate system is watertight.

(i) Construction: Functional tests of fixtures and equipment.

(j) Occupancy: Observation of function during full occupancy simulating extreme conditions.

(k) Waste Pipe Sizing:

- (1) Size & slope piping as required by code.
- (2) Substantiation:
  - Schematic Design: Analysis and documentation of sewer discharge method and locations.
  - Design Development: Drainage design calculations and documentation of piping outlets.
  - Construction: Water pressure tests of piping systems; functional tests of drains and equipment under simulated full occupancy loads.
  - Occupancy: Observation of function during full occupancy simulating extreme conditions.

(1) Rain Water Drainage Capacity: As specified in the code and as follows:

(1) Design Rainfall Rate: Short storm intensity as per standard design conditions for region (El Segundo).

(2) Secondary Drainage: Required for roofs and exterior structural decks that do not drain naturally. Provide secondary roof drains connected to a secondary drainage system.

- (3) Substantiation:
  - Schematic Design: Analysis and documentation of rain water discharge methods and locations.
  - Design Development: Drainage design calculations and documentation of piping outlets.
  - Construction: For non-pressurized systems, water pressure test to verify continuity of piping; functional tests of each drain.
  - Occupancy: Field observation of performance during at least two storms.

(m) Ease of Maintenance and Repair:

(1) Isolation of Piping Segments and Equipment: Provide a means of isolating the following:

- Each building from main water service. Provide a shut-off valve located inside a valve box whose removable access cover is at grade level.
- Water meter from building piping at the Officer's Club.
- Each 2" and larger water branch from main service.

- Each vertical riser from piping below.
- Each water branch to fixtures or equipment from main vertical riser.
- Piping lower than the supply, to prevent unnecessary draining in the case of disconnection.
- Each series of plumbing fixture(s) or flush valve lineup, storage tank, and item of equipment, so that removal of one will not necessitate shutdown of others. All sinks and lavatories shall have shut off valves.

(n) Provision for Drainage of Water Distribution Piping:

- Provide a system drain at the lowest point in the system (i.e. first floor service sink).
- Provide an adequately sized drain for the volume of water inside the distribution system.
- Drain valve (or fixture shut-off valve) located at each low point.

(o) Provision for Cleaning of Underground Drainage Piping: Provide a cleanout as required by code and as follows:

- At the upstream end of each horizontal sanitary drainage pipe, for cleaning in direction of flow.
- At the dead end of each dead-end pipe.
- Pipe 3 inches and Smaller: At intervals of 50 foot, maximum.
- Pipe 4 inches to 6 inches: At intervals of 80 foot, maximum.
- Pipe 8 inches and Larger: At intervals of 100 foot, maximum.

## 5.6 ARCHITECTURAL AND ENGINEERING REQUIREMENTS

### 5.6.1 Interiors:

(a) Basic Function:

- Provide appropriately finished interiors for all spaces indicated in the program, equipped with interior fixtures as required to function properly for specific occupancies.

(b) Interiors comprise the following assemblies:

(1) Interior Construction: All elements necessary to subdivide and finish space enclosed within the shell, including applied interior surfaces of the exterior enclosure.

(2) Interior Fixtures: All elements attached to interior construction that add functionality to enclosed spaces, except for elements classified as equipment, interior furniture systems, demountable partitions or services fixtures.

(3) Provide physical separation between spaces, constructed to achieve fire ratings required by code, appropriate security between adjacent spaces, and visual, acoustical, olfactory, and atmospheric isolation as necessary to maintain desirable conditions in each space.

(4) Provide finishes for interior surfaces that are appropriate for the functions of each space.

(5) Provide interior fixtures that are necessary for the proper functioning of each space as per Exhibit E, the FF&E matrix.

(6) Where interior elements also must function as elements defined within another element group, meet requirements of both element groups.

(7) Reference Documentation: In addition to the requirements of this chapter, comply with all applicable requirements as listed in Section 3.0.

### **5.6.2 Amenity and Comfort:**

(a) View: Provide views to the building exterior from most locations within primary interior spaces, especially the customer contact and occupant work areas.

(b) Acoustical Performance:

- Background Noise: Provide interiors that maintain ambient sound levels in primary spaces within the following Noise Criteria (NC) ranges, as defined in ASHRAE HVAC Applications Handbook, when adjacent spaces are occupied and are being used normally. In open office areas, special sound attenuating devices are not required; however, sound engineering principles and practices shall be used to minimize noise transmission.

(c) Odor Control: Design systems that prevent to the greatest extent possible the potential for the transmission of unpleasant, dangerous, or noxious odors generated within a space from affecting occupants of adjacent spaces, by providing physical isolation of the spaces, separate ventilation, or a combination of isolation and ventilation. Prevention of transmission of odors in the supply system will be reduced by the under floor air supply plenum system, which requires largely unobstructed space below the access floor system. ASHRAE standards for office standards shall be maintained.

- Appearance: Provide interiors that are pleasing in appearance and do not detract from the primary functions performed in each space.

- Provide proposed interior finishes (selections, manufacturers, palette, materials, durability, special requirements, etc.) with interim design submittals for Air Force review and approval prior to incorporation into the final design.
- Texture: Provide interior elements and surfaces that are textured appropriately for primary functions to be accommodated within each space.

### **5.6.3 Health and Safety:**

(a) Egress: Provide egress from all interior spaces in accordance with code.

(b) Fire Resistance: Design and select materials to provide fire resistance in accordance with code.

### **5.6.4 Structure:**

Structural Performance: Provide interior construction and fixtures to support without damage all loads required by code.

### **5.6.5 Operation and Maintenance:**

Cleaning: Provide interior construction and fixtures that will not be damaged by ordinary cleaning and maintenance operations.

### **5.6.6 Facility Finish Levels:**

(a) The finish levels within the SAMS Complex will vary depending on the use and function of the workspace. The following table depicts the minimum trim components associated with each finish level.

**Table 5.1 Finish Level Trim Components**

Finish Level	Painted Gypsum Board	Ceramic Tile Walls	Vinyl Baseboards	Ceramic Tile Base	Carpet	Vinyl Tile Floor	Ceramic Tile Floor	Acoustic Ceiling Tile	Painted Ceiling, Exposed Structure	Wood Chair Rail	Sealed Concrete Floor	Panel Wall (By Furn. Contr.)	Notes:
E/E+	+		+		+			+		+			
O+	+		+		+			+		+			
O	+		+		+			+					
W	+		+		+				+			+	1
S	+		+			+		+					
R		+		+			+		+				2
H	+		+		+			+		+			
C	+		+			+			+				
M	+		+						+		+		

Notes:

1: Open office areas (no acoustical ceilings)

2: Based on Developer's Final Proposal Revisions, use ceramic tile only on wet walls

(b) The following finish level tables are provided as a guide for each type of space. In addition to assigning trim level by space, the following tables indicate which spaces require private bathrooms and increased sound privacy provided with soundproofing.

**Table 5.2 Office Space Finish Level**

<b>Office Space:</b>	<b>Finish Level</b>	<b>Sound Attenuation (STC 45)</b>	<b>Private Bathrooms (with showers)</b>	<b>Notes:</b>
OL-1	E+	Yes	Yes	1
OL-2	E	Yes	Yes	1
OL-3	E	Yes		
OL-4	O+			
OL-5	O			
SL-1	W			
SL-2	W			
SL-3	W			
<b>Notes:</b>				
1. Two Generals and one SES, if in the Command Section, will have private Bathrooms with showers.				

**Table 5.3 Conference Space Finish Level**

<b>Conference Spaces</b>	<b>Finish Level</b>	<b>Sound Attenuation (STC 45)</b>	<b>Notes:</b>
CL-1	E	Yes	
CL-2	E	Yes	
CL-3	E	Yes	
CL-4	O+	Yes	
CL-5	O+	Yes	
SCL-6	W		
SCL-7	W		
Conference Center	O	Yes	
Presentation Room	O+	Yes	
Court Room	E	Yes	
<b>NOTES:</b>			
1. Build IAW Air Force design guide for Court Rooms			

**Table 5.4 Training Space Finish Level**

	Finish Level	Sound Attenuation (STC 45)	Notes:
<b>Training Spaces</b>			
CZ Training Room	O	Yes	
CL Training Room	O	Yes	
AX Training Room	O	Yes	
DSMA Training Room	O	Yes	
FM Training Room	O	Yes	
MT Training Room	O	Yes	
PK Training Room	O	Yes	
XPM Training Room	O	Yes	
61 CS Training Room	O	Yes	
61 CS Training Room	O	Yes	

**Table 5.5 Specialty Space Finish Level**

<b>Specialty Spaces</b>	<b>Finish Level</b>	<b>Sound Attenuation (STC 45)</b>	<b>Notes:</b>
Classified Work Area	O	Yes	
MT SERG	O	Yes	
Command Post	O		
BNCC	C		
SCIF	O	Yes	
SCIF Equipment Room	C		
IN		Yes	
Reservist Lab	O		
Research Center	O		
Computer Lab	O		
IN/PWW Equipment Room	C		
Library (1 Large Room)	O		
PWW Server Room	C		
IN Server Room	C		
XR		Yes	
Equipment Room	C		
TS Computer Room	C		
Secret Computer Room	C		
Blue Room	O	Yes	
Notes:			

**Table 5.6 Miscellaneous Space Finish Level**

	Finish Level	Sound Attenuation (STC 45)	Notes:
<b>Miscellaneous Spaces</b>			
61 CS/SCSV			
Photo Lab			
Development Room	O		1
Studio	O		
Digital Development	O		
Office	O		
Storage	O		
Video Lab			
Editing Suites (4)	O	Yes	
Tape Library	O		
Dubbing Room	O	Yes	
Viewing Room	O	Yes	
Office Area	O		
Art Services			
Production Room	O		
Work Area	O		
Processing Room	O		
Storage	O		
Presentations			
VTC (3)	O	Yes	
Board Room	C	Yes	
Office Area	C		
Storage	O		
Conference Room	O	Yes	
Business Center	O		
Consolidated Club	AR		
Child Development Center	AR		
Notes:			
1. Provide eyewash facility.			
AR – As required			

**Table 5.7 Communications Space Finish Level**

	Finish Level	Sound Attenuation (STC 45)	Notes:
<b>Communication Space</b>			
Cable Vault (Entrance Facility)	C		
Main Distribution Frame (MDF)	C		
Telecomm Room (TR)	C		
Main Point of Presence (MPOP)	C		
Dial Central Office (DCO)	C		
DCO Battery Room	C		
Switchboard Operator Room	O	Yes	
Consolidated NCC (CNCC)	C		
Main CLASSIFIED NCC (CER)	C		
Satellite CLASSIFIED Eqpt Rm (CER)	C		
Notes:			

**Table 5.8 Facility Space Finish Level**

Facility Space	Finish Level	Notes:
Computer Storage Room	S	
File Storage Room	S	
Janitor Closet	R	
Electrical Room	M	
Mechanical Room	M	
Hallway	H	
Restroom	R	
Lobby		1
Notes: 1. Finish consistent with Class A office building.		

**5.6.7 Interior Materials and Finishes Submittals and Requirements:**

(a) Walls

(1) All interior walls shall:

- Be constructed to the underside of the structure above if required for sound attenuation, security, privacy, fire rating, or programmatic configuration
- Be steel-frame (wood framing is prohibited).
- Have washable paint,

(2) Showers and wet walls in toilet areas and lavatory areas shall have full-height ceramic tile wall finish adjacent to sinks and toilet areas; other areas have a painted Gypsum Wall Board (GWB) finish. Acoustical insulation shall be provided at demising walls and walls requiring an STC assembly.

(3) Lobbies shall have natural stone tile, porcelain tile, WIC Premium book-matched wood, glass, stone accent paneling, or similar material treatment as appropriate for a Class A office building. Developers are encouraged to provide alternate, more

cost-effective materials and finishes in lobbies, while still suitable for Class 'A' use. Walls at corridors, conference rooms, closed offices (OL 1, 2, and 3 only), restrooms, and those areas shown on Tables 5.2-5.7 which are so indicated shall have STC 45 minimum partitions. Door openings in STC 45 partitions do not require acoustic doors, perimeter door seals, automatic door bottoms. STC 45 Partitions are not required under floor, excluding classified areas. Care shall be taken that ceiling-to-wall, wall-to-door, wall-to-raised-flooring and similar interfaces maintain the minimum STC.

(b) During the design/build phase the Developer shall submit:

- Product data and shop drawings of framing components for different wall finish materials;
- 2' x 2' minimum mock-ups showing all ceramic walls, stone, wood paneling and similar materials; and
- Samples of all transition pieces and special elements

(c) Demountable Partitions (GFGI)

(1) The Air Force will purchase and install all demountable partitions for the SAMS project; however, the Developer is responsible for performing the layout, and managing the installation. The supplier shall perform design of the demountable partitions.

(2) Demountable partition systems shall:

- Be of a vertical delineation revealing design between panels;
- Have a floor-to-ceiling height ranging from 84" to 120";
- Permit extension in 2-, 3-, or 4-way plan conditions at any location without removal of existing panels or floor track; and
- Provide a 3" vertical adjustment in overall height to accommodate floor irregularities, and +/- 1/2" at ceiling track.
- Include integrally mounted doors, frames and hardware.

(3) Each panel unit shall:

- Be constructed in such a manner as to contain provisions for mounting work surfaces and storage components on either side of the partitions including side-by-side mounting;
- Have the ability to be installed on top of finished flooring, raised flooring, or carpeted flooring (the system can be installed to the underside of suspended

grid ceilings without the use of destructive fasteners);  
and

- Provide for complete integration of conventional and modular power systems.

(4) Frames may be either of the following: 2" standard frames, 4" non-stacking frames, or 4" stacking frames.

(5) The system shall:

- Accommodate marker board and tackable acoustic fabric skins;
- Have an integral leveling system with adjustment points at both the ceiling and floor intersections;
- Have the ability to accommodate glass frames consistent with the modules of the frame system (all glass frames shall be of tempered glass);
- Have trim consisting of base trims, top caps and edge trims, and any other elements required for a complete closure of the system;
- Have the ability to interface with a post-and-beam system that can utilize electrical data along with modular marker board components (the post-and-beam system shall interface with the horizontal top raceway system at a height of 72"); and
- Have a minimum STC 45 rating at all offices and conference rooms.

(d) All connection systems shall have the ability to accommodate in-line connections, off-module connections, and standard junctions. Moveable furniture components shall have the ability to work with all demountable and office partitions.

(e) Modular furniture systems shall be pre-wired for power. Wiring and cabling shall utilize power distribution kits with standard receptacles and adapters. The demountable partition system and the office partition system (see below) shall be from the same manufacturer.

(f) During the design/build phase the Furniture Contractor shall submit to the Developer for coordination & review & Air Force for their review:

(1) Manufacturer's catalog data indicating thickness of material, fastenings, proposed method of anchoring, hardware, fittings, mountings, doors, frames, lights, and other related items;

(2) Samples of material, finish, and color; and

(3) Constructed mock-up of one fully enclosed room on-site. Mock-up may be incorporated into the project if accepted.

(g) Office Partition Systems (GFGI)

(1) Modular furniture systems for all office and conference areas designated as "SL". These systems shall generally consist of a powered "spine" wall with non-powered side panels, cantilevered work surfaces, flipper cabinets, pedestal drawers, chairs, and various accessories.

(2) The Air Force will purchase and install all systems furniture for the SAMS project; however, the Developer is responsible for performing the layout and managing the installation. The Furniture Supplier shall perform design of the furniture systems.

(3) All systems and components shall conform to ANSI/BIFMA standards for structural integrity & mechanical strength, shall be free of rough or sharp edges, shall be UL Listed, and shall meet NFPS 101 requirements for fire retardance. The Modular furniture systems shall be compatible and interface with the Demountable partition systems.

(h) All components, including the panel system, must be easily disassembled and reinstalled without requiring special tools or factory-certified installers. Accessories and task lighting shall be supplied by the same vendor as the panel system, or be designed to integrate specifically with the proposed panel system.

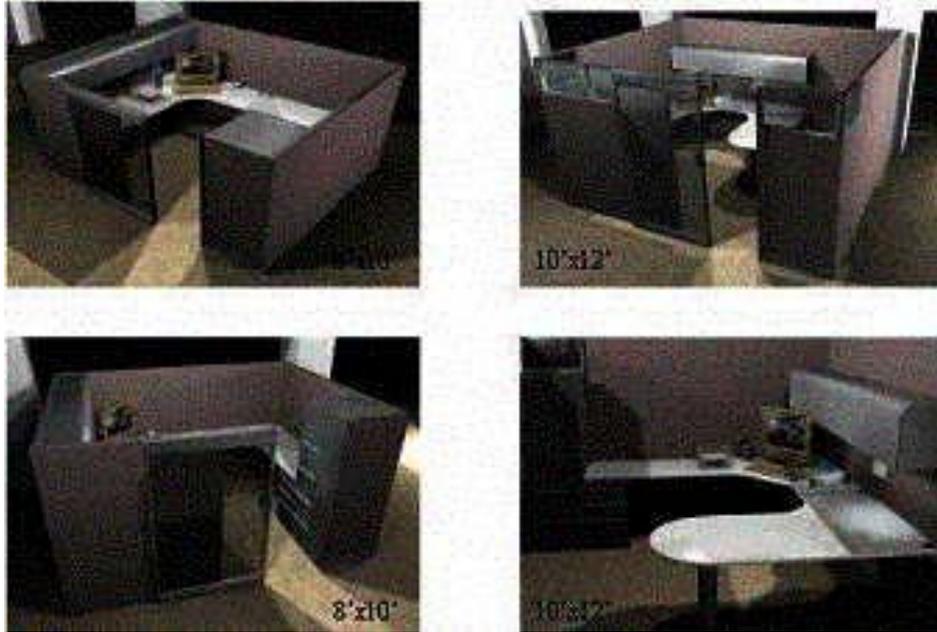
(i) The furniture vendor shall supply the following guarantees:

- A 10-year warranty on all systems and components (with the exception of task lighting, electronic ballast, and tools)
- A written commitment to non-obsolescence of the product.

(j) Alternate designs to those specified in this document are permissible if they meet or exceed the specifications contained herein. The Government maintains the right to re-design or reconfigure the proposed furniture system (eg: number and location of flipper cabinets, lateral files, etc.) without contract modification prior to order. Additional costs will be based on the pricing schedule used in the original bid.

(k) All panels must be capable of supporting cantilevered work surfaces, shelves, flipper cabinets, etc., while accommodating height adjustments of these devices in 1" increments. Each section shall have leveling guides & will be installed plumb.

(l) Spine walls and side panels will be available in "step-down" walls of varying vertical heights from 30" to 72" and will interface with an 18" access floor system or cellular floor systems on 24" or 60cm centers, solid floors, GWB walls and power poles. The following pictures illustrate typical configurations with varying panel heights.



(m) The government will select the panel colors and finishes. Fabric used on systems furniture panels and chairs shall be a minimum of grade 30 and be in the cost range of \$23.00 per square yard. The acoustical rating of panel structures must be a minimum NRC of .80 and STC rating of 24.

(n) All modular panels will be stackable, interchangeable and be available with the following surfaces:

- Glazed
- Tackable (not to be used as acoustical panels) (minimum of one per work area)
- Non-tackable
- White Board, integrated or surface-mounted (minimum of one per work area)
- Tool Rail (minimum of one 16" high rail panel per work area)
- Aluminum slat-wall skin panels

(o) Other panel system requirement include:

- Top of panels adjacent to windows must be at or below sash height
- The system design must take into account panel creep and leave room for additional items in the work space, such as printers and safes

(p) The Spine Wall shall be a freestanding panel system with a minimum thickness of 2 1/4". The panels must be able to connect in straight line, right angle or "T" configurations, and must be able to provide horizontal and vertical management for power and telecommunications cables.

(q) Side panels shall have a nominal thickness of 2" and shall attach perpendicularly to the spine wall at modular intervals. Side panels shall be light enough to be moved by one person during minor reconfigurations. All side panels shall extend beyond the width of the work-surfaces.

(r) Work-surfaces shall be cantilever type, with cable management raceways between the work-surface and furniture panels, and a cabling grommet in corner areas. The Work-surface material shall be a high-pressure laminate, a minimum of 1.25" thick. Work-surfaces shall be height-adjustable for user preference and to meet ADA requirements.

(s) The following accessories shall be included in each work area:

(1) Work-surface accessories:

- Under-surface, hinged, adjustable keyboard tray with mouse pad extension
- Under-surface pencil drawer

(2) Flipper Cabinets:

- Provide two flipper cabinets per work-station for work areas with panel heights of 60" or greater
- Maximum load for door unit or shelf shall be 150 lbs
- Cabinets shall be equipped with over-the-top doors with fabric or veneer covers (non-writeable surface)

(3) Task Lighting:

- Provide under flipper cabinets, minimum of one per four-foot furniture panel
- Optional task lighting at top of panels
- Lights must have electronic (rapid start) ballast
- Furniture panels must have clips or other method of hiding task light power cord

(4) Pedestal Drawers:

- Provide a minimum of one freestanding pedestal drawer system per work area
- A stackable drawer system is preferable, with drawers able to open out in either direction
- Include a top drawer office supply organizer

(5) Tool Rail Tools:

- Shelves
- Horizontal paper trays
- Diagonal paper/magazine trays
- Vertical paper/magazine trays
- Pencil/white board material holders

(6) Chairs:

- Office chairs with castors
- Fabric to coordinate with panel fabric and of same quality as panel system

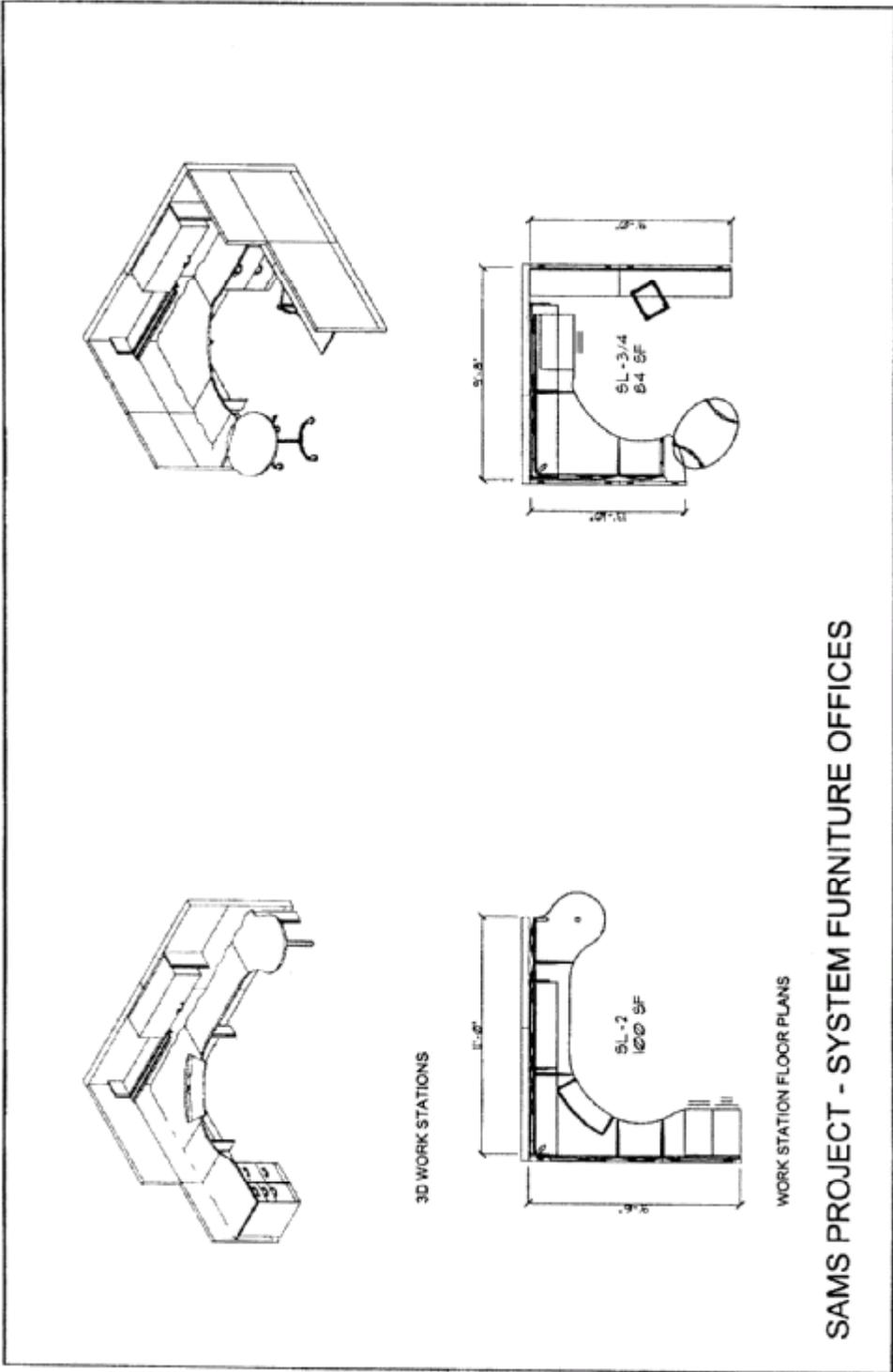
(7) Cable Management Capabilities:

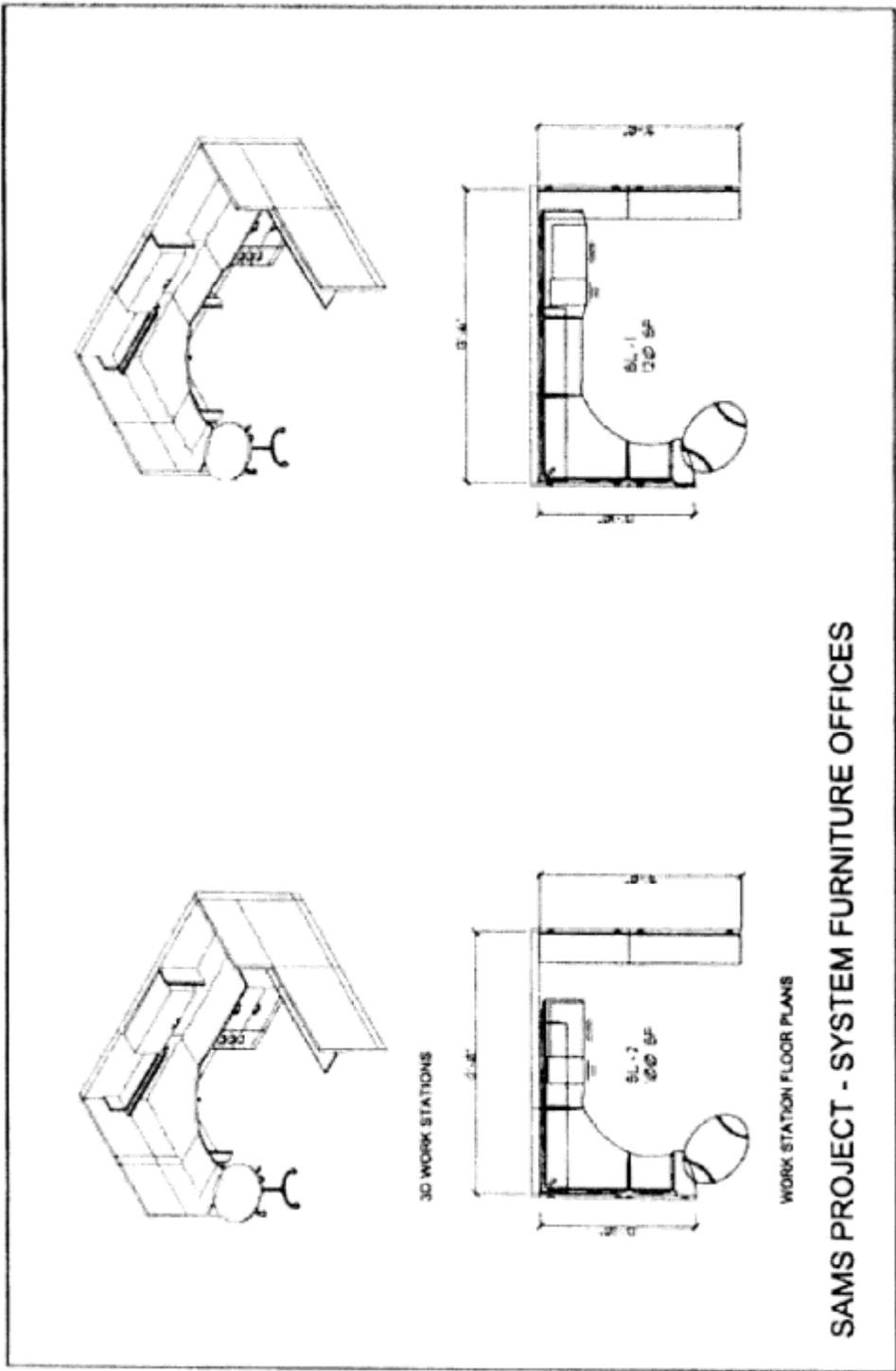
- Cable management shall be Lay-in type, not pull-through
- Management system shall accommodate a minimum of four BLACK security level telecom cables (CAT 5e or fiber) per workstation
- At least two panels per work area shall include knockouts with snap-in telecommunication faceplates under the work-surface, accommodating a minimum of two connections per faceplate
- Telecommunications cabling must be separated from power cabling inside panels by a minimum of 6"
- Panel system must be capable of accommodating an additional set of RED cabling and faceplates, separated by a minimum of 6" from BLACK telecom cabling and power.
- The cable management system must be able to integrate with Telecom/Power ceiling columns at any point along the spine wall
- The cable management system must be able to integrate with under-floor or hard-wall power and telecom cabling at any point along the spine wall
- The cable management system must allow easy access to cabling without dismantling work-surfaces or other major components
- The cable management system must be certified for CAT 5e cabling and able to accommodate the minimum bend radius of fiber optic and CAT 5e cable

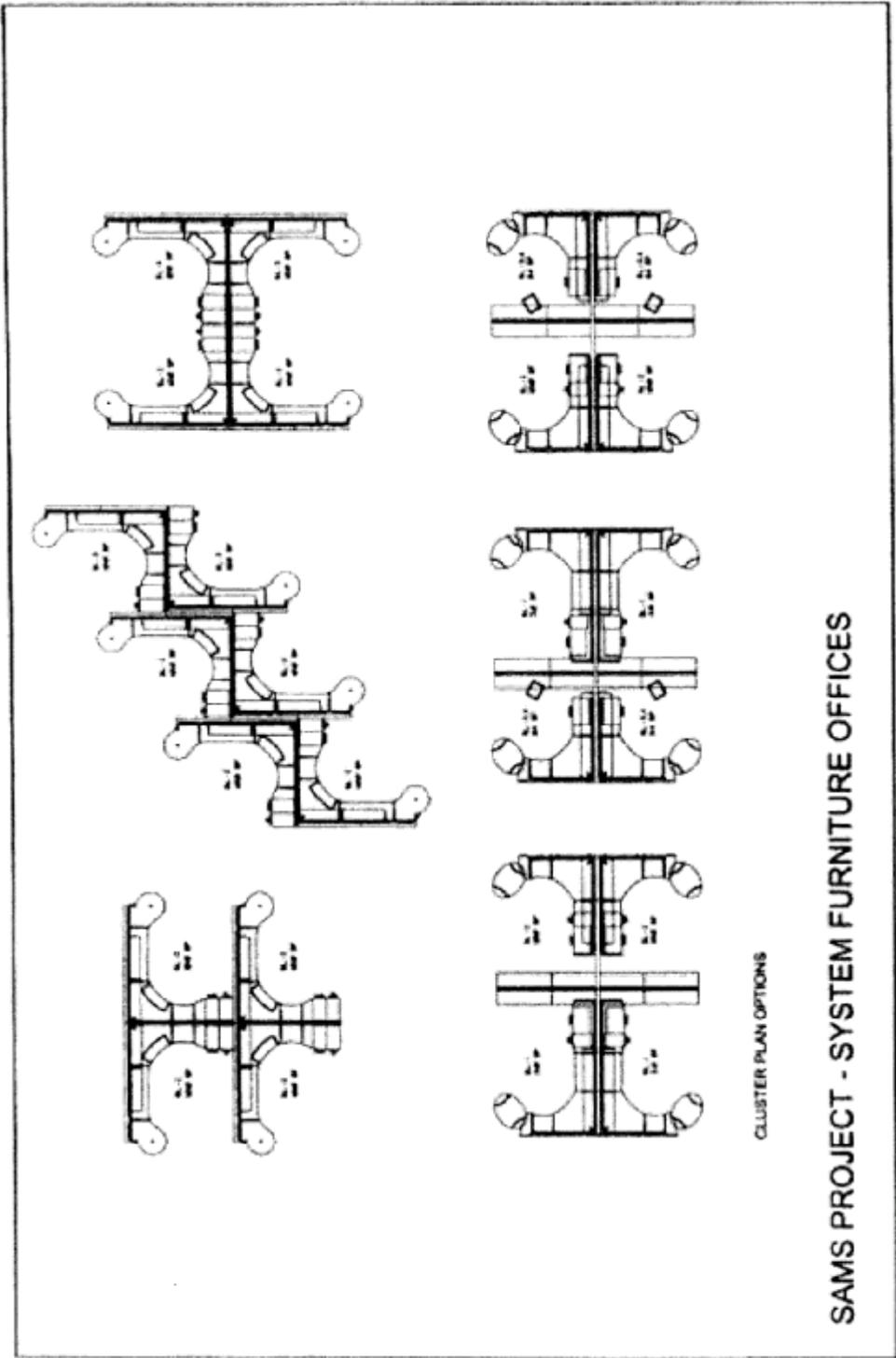
(8) During the design/build phase the Furniture contractor shall submit to the Developer for coordination & review & Air Force for their review:

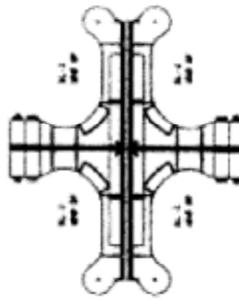
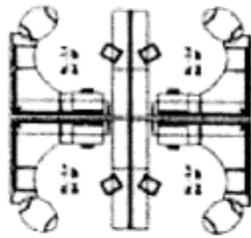
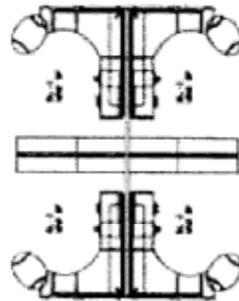
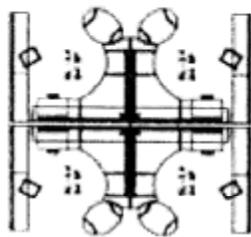
- Manufacturer's catalog data indicating thickness of material, fastenings, proposed method of anchoring, hardware, fittings, mountings, indirect lighting, and other related items;
- Samples of material, finish, and color; and
- Samples of cable management hardware, telecommunications and electrical receptacles, ceiling column cross-section; and
- Constructed mock-up of one workstation on-site. Mock-up may be incorporated into the project if accepted.

# Typical SAMS Systems Furniture Layouts









CLUSTER PLAN OPTIONS

SAMS PROJECT - SYSTEM FURNITURE OFFICES

(t) Interior Doors:

(1) Entrance doors to suites and departments (except to utility areas, see below) may be aluminum glass storefront system to match the exterior aluminum storefront system. Doors to suites and departments may also be solid-core wood, oversized, with selected face veneers, five-ply minimum, and in conformance with WIC Premium grade standards.

(2) Doors within suites and departments shall be solid core wood with selected face veneers, five-ply minimum, and in conformance with WIC Custom grade standards. Wood doors shall be shop finished, stained, of solid-core construction, and shall have, mineral, or particleboard cores (formaldehyde free). Doors shall have frames of comparable quality and design. Steel frames shall be fully welded. Aluminum frames can be field assembled.

(3) Entrance doors and/or doorframes shall be capable of accepting Government Furnished and Government Installed (GFGI) security and access control devices such as electric latches and Balance Magnetic Switches (BMS). All emergency exit doors and exterior doors leading into mechanical or electrical rooms require BMS capability.

(4) Interior doors in utility areas shall be hollow metal with fully welded steel frames. Finishes shall be paint with shop-primed rust inhibiting primer. Doors shall be heavy duty, 45 mm thick, Grade II, Model 2, core construction Type B, minimum. Interior doors and/or doorframes into classified and controlled areas shall be capable of accepting GFGI security and access control devices such as electric latches and BMS.

(5) The personnel entry doors for the SCIFs, CNCC, SERF, DCO, Classified Equipment Rooms, BNCC, and Command Post require both electric latches and BMS. The Command Post requires a mantrap area with both doors equipped as stated. The equipment entry doors for the SCIFs, CNCC, SERF, DCO, Classified Equipment Rooms, BNCC, and Command Post require BMS only.

(6) Interior doors to all OL-1, OL-2, OL-3, Telecommunications Rooms, Entrance Facility, Cable Vault, electrical and mechanical rooms shall be capable of accepting BMS devices. Additionally, interior doors for the Telecommunications Rooms, Entrance Facility and Cable Vault shall be equipped with the latest Unicam type programmable 5 digit (minimum) locking system. Telecommunications Rooms, Entrance Facility, Cable Vault, CNCC, SCIF entrance and equipment rooms, computer and equipment rooms without double doors shall have a minimum of one 48" wide door.

(7) Prior to installation, the Developer shall submit:

- WIC-Certified Compliance Certificates;
- Product and installation data for all products and shop drawings for millwork;
- 1' x1' cross section and finish sample of each door type; and

- UL-rated assemblies certification for openings in rated partitions.

(u) Hardware:

(1) All doors shall have hardware per table 5.9 on the following page. Construction cores will be by Developer, permanent cores and keying will be GFGI. Mechanical and electronic hardware shall conform to physical security standards.

*[See chart next page]*

LA AFB, Space & Missile Systems Center, SAMS  
Appendix A  
Table of Builders Hardware & Doors/Frames

Location	Quantity (excl CDC)	Door Type	Frame Type	Hardware Grade	Closer	Lockset	Schlage Series Equivalent	Door Seats	Fire Rating	Acoustical Rating	Security Devices (GFG)	Special Construction/Comments
Corridor (2 hr.)	uncertain	HM	Welded HM		Yes	Mortise	L		2-hr			
Lobbies & corridors	uncertain	HM	Welded HM or Alum	EHD Comm	Yes	Mortise	L		1-hr		BMS	
Mechanical, Electrical	33	HM, 1 @ 48" @ Mech or 2 @ 36"	Welded HM	EHD Comm	Yes	Mortise	L		1-hr		BMS	
Telecommunication Rooms	28	HM, 1 @ 48"	Welded HM	Commercial	Yes	GFGI	N/A		1 hr		Cardreader, BMS	
OL-4 & OL-5	516	Wood - 1	FA - HM or Alum	Commercial	No	Cylindrical	S		None	None		
OL-1, OL-2, & OL-3	26	Wood - 1	FA - HM or Alum	Commercial	No	Cylindrical	AL		None	None		
CL-4 & CL-5	44	Wood - 1	FA - HM or Alum	Commercial	No	Panics at code req'd	S		None	None		
CL-1, CL-2, CL-3,	23	Wood - 1	FA - HM or Alum	Commercial	No	Cylindrical, Panics at code req'd	AL		None	None		
Restrooms (incl janitorial)	37	Wood - 1	Welded HM	Commercial	Yes	Pulls w/ Deadbolt	AL		None			
SCIF Entry Doors	2	HM	Welded HM	EHD Comm	Yes	GFGI	N/A	Yes	None	Yes	Cardreader, BMS, Electric Strike	
Stair Wells	22	HM	Welded HM	EHD Comm	Yes	Mortise, Panic	L		2-hr			
Suite perimeter	22	Wood - 2	Welded HM or Alum	Commercial	No	Cylindrical	D		None			
Court Room perimeter	2	Wood - 2	Welded HM or Alum	EHD Comm	Yes	Cylindrical	D		None		Cardreader, BMS	
Court Room interior	0	Wood - 1	Welded HM or Alum	EHD Comm	No	Cylindrical	AL		None			Unknown requirement, Programming TBD
Department Perimeter	7	Wood - 2	Welded HM or Alum	EHD Comm	Yes	Cylindrical	D		None		Cardreader, BMS	
Personnel Entry doors for SCIFS, CNCC, SERF, DCO, CER, BNCC & Command Post	7	HM	Welded HM	EHD Comm	Yes	GFGI	N/A	Yes - ?	None	Yes - ?	Cardreader, BMS, Electric Strike	
Equipment Entry doors for SCIFS, CNCC, SERF, DCO, CER, BNCC & Command Post	7	HM, 1 @ 48" or 2 @ 36" @ CNCC	Welded HM	EHD Comm	Yes	GFGI	N/A	Yes - ?	None	Yes - ?	Cardreader, BMS	
Entrance Facility & Cable Vault	1		Welded HM	EHD Comm	Yes	GFGI	N/A		1 hr		Cardreader, BMS	
Building Entry Doors	14 pairs		Aluminum	EHD Comm	Yes	Deadbolt	D		None		Cardreader, BMS	Weather protection
Exterior Service Doors	2 pairs	Glass/Alum	Aluminum	EHD Comm	Yes	Mortise	L		None		Cardreader, BMS	Weather protection
Exterior Exiting Doors	3	HM	Welded HM	EHD Comm	Yes	Panic	L		1 hr		BMS	Weather protection
Conference & Presentation Center Doors	15	Wood - 2	Welded HM	EHD Comm	Partial	Panic where applicable	D		None			Weather protection
Misc. Consolidated Club Doors	6	Wood - 2	Welded HM	EHD Comm	Partial	Panic where applicable	D		None			
Misc. Utility Doors	10	HM	Welded HM	EHD Comm	No	Cylindrical	D		None			

LEGEND

- Wood - 1 Solid Core, WC Custom Grade, shop finished, stained, mineral or particle board cores, 30" x 70"
- Wood - 2 Solid Core, WC Premium Grade, with Selected Face Veneers, 5-ply min., 30" x 80"
- GFGI Government Furnished, Government Installed
- FA Field Assembled
- BMS Balanced Magnetic Switches
- HM Hollow Metal
- Schlage Series - A Light Duty Commercial

Standard Duty Commercial  
Light Med Duty Commercial  
Extra Heavy Duty Commercial (Cylindrical)  
Extra Heavy Duty Commercial (Mortise)

- AL  
- S  
- D  
- L

(2) During the design/build phase the Developer shall submit:

- Complete door hardware schedule describing products, product data, wiring diagrams for power, signal and control systems; and
- Samples for initial selection.

(v) Interior Lights:

(1) Interior lights shall be aluminum or steel frame with clear or diffused glazing as appropriate for the function of the space to match adjacent door frame material. Where wire glass is required by code, it shall be square grid wire pattern. Interior glazing larger than a single light module shall be aluminum storefront system to match the exterior storefront system.

(2) During the design/build phase the Developer shall submit:

- WIC-Certified Compliance Certificates prior to installation;
- Product and installation data for all products and shop drawings for millwork;
- 1' x 1' cross section and finish sample of each window type; and
- UL-rated assemblies certification for openings in rated partitions.

(w) Flooring:

(1) Offices:

All carpet shall conform to Air Force ETL 03-03 carpet standards and have a ten year wear guarantee:

- Spaces on Raised Flooring: Departmental offices, open office areas, departmental conference rooms and rooms of similar use shall have commercial grade 24 oz. minimum yarn weight carpet tile. Suites on raised flooring will have 28 oz. minimum yarn weight carpet tile.
- Spaces located on slab that are public areas such as the consolidated club and conference center shall have 32 oz. minimum yarn weight roll-goods carpet. Offices and smaller work areas shall have carpet tile conforming to the above standard or 28 oz. minimum yarn weight roll-goods carpet. Areas within suites on

slab shall have 36 oz. minimum yarn weight carpet. Field and accent carpet must be by the same manufacturer.

- CDC shall have 28 oz. minimum yarn weight roll-goods carpet.

(x) Restrooms:

Restrooms shall have thin-set ceramic tile flooring, unglazed porcelain. Base tile and trim tile that matches floors shall be provided. Base shall be flush with ceramic tile. Provide marble thresholds as a transition between ceramic tile and carpet.

(y) Other Spaces:

(1) Lobby floors shall be natural stone, terrazzo, or other comparable materials appropriate for a Class A office building. The design and layout of the lobby shall include consideration for floor-mounted power receptacles to support GFGI metal detectors and scanners.

(2) Utility, electrical, mechanical, janitorial, and similar rooms shall have a sealed concrete floor except where raised floor is provided. Dedicated computer rooms and operational centers with raised floors shall have a hard surface floor as recommended by the raised floor manufacturer. Break-rooms, coffee bars, kitchens, and similar areas shall have at minimum, commercial-grade vinyl tile or appropriate finish for access floor panels, as applicable.

(3) During the design/build phase the Developer shall submit:

- Manufacturers catalog data;
- 1' x 1' minimum samples of each floor material, color, and pattern.
- Seaming diagrams for carpeted areas other than at raised floors;
- 2' x 2' mock-ups showing all ceramic floor tile colors and patterns;
- Samples of all transition pieces and special shapes; and
- A minimum of 5 percent extra stock of each color and pattern of each floor material installed in the facility.

(z) Raised Floor System:

(1) A raised floor system designed as a supply air-plenum for HVAC should be considered the standard for all areas in the facility design. As a minimum, a raised floor is required in equipment rooms to include the CNCC, main Classified equipment room, and DCO. Areas that do not require the raised floor system will be the Kitchens, CDC,

Presentation room, Conference Center, Elevator Lobbies, Consolidated Club, Restrooms, Mechanical Rooms, Art Services, the Court Facilities, stairways and other spaces where the advantages of the under floor air system, or raised floor system are not a benefit.

(2) The raised floor system height shall be sufficient to support the installation and maintenance of cable conveyance systems, power distribution, water pipes and other components generally associated with installations of this type. If an overhead HVAC distribution system is utilized, the raised floor height may be reduced as appropriate.

(3) The raised floor in the office area shall be a minimum of 8". The floor height may be adjusted depending on the area serviced by the plenum and the quantity and volume of other under floor utilities and services. The raised floor system shall be compatible with the office flooring requirements referenced above.

(4) The raised floor in data/telephone and electrical equipment areas shall be a minimum of 12". The floor height may be adjusted depending on the area serviced by the plenum and the quantity and volume of other under floor utilities and services. No under floor fire detection, protection/sprinklering is required unless by Code.

(5) The raised floor system shall be compatible with the flooring requirements referenced for other spaces above.

(6) The raised floor system shall:

- Be rated for class "A" flame spread and smoke development ratings;
- Be compatible with both 24" sq. and 60 cm sq. applications;
- Accommodate both steel and aluminum panel systems;
- Allow for a minimum of 50 p.s.f. uniformed load in office areas;
- Allow for a minimum of 100 p.s.f. uniformed load in equipment areas;
- Concentrated Load: Panel shall be capable of supporting a concentrated load of 1000 lbs. placed on a one square inch area (using a round or square indenter) at any location on the panel with a maximum top surface deflection of 0.100 inches. Panel shall not exceed a permanent set of 0.010 inches, after the load is removed. Panel shall demonstrate ductility by being loaded to a deflection of 0.100 inches without incurring damage.
- Uniform Load: Panel shall be capable of supporting a uniform load of 250 lbs. placed on a one square foot area at any location on the panel with a maximum top surface deflection of 0.060 inches. Panel shall not

exceed a permanent set of 0.010 inches, after the load is removed. Note: The uniform load rating of an access floor panel as specified herein should not be confused with the "uniform live load" as specified in seismic zone applications.

- Allow for a minimum ultimate load of 3,000 lbs.;
- Allow for a minimum load of 800 lbs. for 10 passes and 600 lbs. for 10,000 passes per Cisca Test Procedures For Access Flooring;
- Accommodate solid, grate, and perforated panels;
- Have solid panels injected with acoustic fill material;
- accommodate under-floor HVAC plenum system with electronic VAV terminals and provide manual floor diffusers for individual comfort control at each workstation;
- In non-open office areas, accommodate primary and secondary distribution boxes as well as under-floor P.V.D. (phone, voice and data) service centers; and power distribution centers
- Furnish an attic stock of each type of access floor panels of 3%

(aa) Ceilings:

(1) General

- All ceilings shall be a minimum of 9' clear height. Lobbies and individual rooms accommodating 30 people or more shall have a minimum of 10' clear ceiling height. Vaulted ceilings in lobby areas are highly desirable and will be considered a facility enhancement. Main entry lobbies should have a minimum of 12' clear ceiling height. Exceptions may be made where mechanical or structural elements need to be accommodated.

(2) Private Offices

- Offices, departmental conference rooms, and similar use rooms shall have at minimum a 2' x 2' suspended, lay-in ceiling system with acoustical panels. Edges shall be square cut regular lay-in or tegular. Light reflectance shall have a minimum LR of .075.
- The ceiling grid system material shall be double-web Electro-galvanized steel with a baked polyester paint finish; duty classification Intermediate.

- In lieu of a drop ceiling, exposed structure may be used in open office areas. Paint shall be applied to all exposed elements to include the metal deck above. Fireproofing should be masked off to limit over spray and light fixtures shall be cable hung or pendant mounted. Finally, any exposed ductwork, conduit, and piping shall be coordinated to minimize intrusion.
- In areas where an under floor plenum is utilized, systems other than suspended ceiling shall be proposed for review and approval.

(bb) Other Spaces:

(1) Restrooms, core areas where required by code, kitchens, and similar areas (as expected in a typical Class A office space) shall have gypsum board or plaster ceilings. Kitchens may also use washable lay-in ceilings systems meeting code requirements. Rooms accommodating 30 people or more shall have a combination of gypsum board and acoustical ceilings. Showers shall have water resistant gypsum board or fiberboard or equal. Lobbies shall have above standard ceiling design features. Lighting shall be integrally designed to enhance the lobby and ceiling design. Conference rooms and other special use spaces shall have lighting designed for maximum control and flexibility. Audio-visual systems shall be integrally accommodated within the design of the room.

(2) For other spaces such as Restrooms, utility rooms, corridors, kitchens, and similar areas: During the design/build phase the Developer shall submit:

- manufacturer's catalog data and 1'x 1' minimum samples of ceiling tile, ceiling suspension system, and other ceiling materials;
- provide 5% attic stock of each type and color ceiling tile supplied; and provide a 10-year service life, without abnormal disturbance.

(cc) Miscellaneous Systems Components and Equipment:

(1) Elevators:

- Elevator systems shall:
- be at least comparable to Class "A" type office building standards for wait time, interior finishes, and door finish;
- have a minimum rating of 2,500 pounds;
- accommodate up to 15 passengers at a rate of 150 ft. per minute minimum
- have stops adequate to serve all floors of the building; and

- have the ability to accommodate a remote elevator monitoring system.
- Hydraulic elevators are acceptable
- All hydraulic pistons be double walled

(2) One elevator shall be designed as a service elevator with increased cab size and load rating.

(dd) Identification Devices:

(1) Identification devices for exterior and interior installations shall comply with ADAAG requirements. Exterior signage shall identify the facility at the main entrance and at all ancillary entrances. Individual die-cut letters shall match exterior graphics of other LAAFB buildings. Ground-level monument signs shall be provided to adequately identify the facility. Developer shall only be responsible for code required signage. All other signage will be GFGI.

(2) During the design/build phase, the Developer shall submit:

- Schedules of all identification devices which indicate type, material and location; and
- Samples of each type.

(ee) Millwork:

(1) Casework shall meet WIC Custom Grade standards and shall have the WIC stamp, except for those locations indicated that conform to WIC Premium Grade. Countertops shall be solid polymer material. Casework and countertops in restrooms shall be solid polymer material with integral sinks. Casework in suites, the lobby reception area shall meet WIC Premium Grade standards, and shall have the WIC stamp. Developer furnished casework in other areas may be plastic laminated. Casework shall be manufactured of selected matching hardwood veneer. Lobby casework and paneling shall be book matched. Countertops shall be granite or solid polymer material selected from the manufacturer's designer series. Casework, cabinets and countertops in the SP2 & SP6 office, conference, and meeting spaces shall be furnished and installed by the Systems Furniture Contractor.

(2) During the design/build phase the Developer shall submit:

- Shop drawings complying with WIC criteria and with a WIC certified compliance label;
- Samples, 1'x1' minimum, of each type, material, and finish; and
- Manufacturers data.

(ff) Operable partitions:

Manual operable partitions (such as those used to divide meeting spaces) shall provide acoustical standards of 45 STC minimum and shall have recessed floor and ceiling tracks, lock downs, and recessed storage.

(gg) Toilet partitions & Accessories:

Toilet partitions shall be ceiling hung. Laminated plastic or metal type partitions are prohibited. Hardware and fittings shall be institutional duty. Toilet accessories shall include recessed toilet tissue dispensers, semi-recessed paper towel dispensers and disposal, recessed seat cover dispensers, recessed sanitary napkin dispensers, counter-top-mounted soap dispensers, handicap grab bars, and mirrors. All accessories shall be of stainless steel construction.

(hh) Window Treatment (GFGI):

(1) Exterior and interior windows shall have horizontal or vertical blinds, to be provided, if desired, by the Air Force. Materials shall be non-yellowing and able to operate manually.

(2) During the design/build phase the Developer shall review:

- Manufacturer's catalog data indicating thickness of material, fastenings, proposed method of anchoring, hardware, fittings, mountings, and other related items; and
- Samples of material, finish, and color.

(ii) White Boards and Tackable surfaces:

(1) All conference rooms and breakout areas shall have integrally designed white boards and tackable surfaces to pin-up work products. See Table 64.2 for defined surface areas of white boards and tackable surfaces.

(2) During the design/build phase the Developer shall submit:

- Manufacturer's catalog data indicating thickness of material, fastenings, proposed method of anchoring, hardware, fittings, mountings, and other related items; and
- Samples of material, finish, and color.

(jj) Food Service Equipment (GFGI):

The Air Force shall either relocate existing equipment, or furnish and install new kitchen equipment for the new consolidated club.

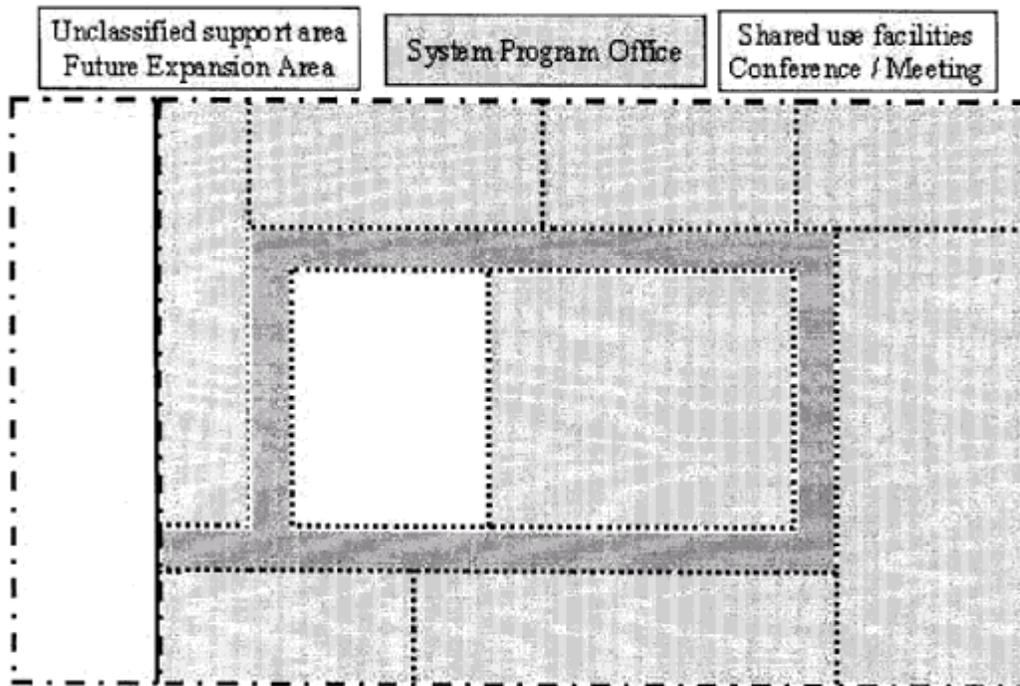
(kk) Protection Screens (GFGI)

(ll) Seismic Requirements:

Replacement facilities must comply with the seismic and safety design standards for Los Angeles County, California, as per Section 3.0 References. In addition to Los Angeles County requirements, facilities must also comply with requirements contained in Air Force Engineering Technical Letter 00-5, Seismic Design for Buildings and Other Structures.

(mm) Sensitive Compartmented Information Facility Requirements:

There is a requirement for the Developer to provide a 6-compartment non-tempest facility SCIF. The design concept is to locate the SCIF in the basement of a facility. The area shall have one entry point, connected by a short corridor to an interior circulation loop. Located on the exterior of the loop are several System Program Offices (SPOs). Each SPO area is to be constructed as a SCIF within a SCIF. Located on the interior of the loop are additional SPOs unique areas and a Shared Use Facilities Conference/Meeting area. Each Shared Use Facilities Conference/Meeting area shall also be constructed as a SCIF within a SCIF. The interior and exterior walls shall meet DCID 1/21 construction requirements. Each SPO area will be made up of a number of office areas, conference rooms, specialty rooms and equipment rooms. These areas have been tentatively identified and are included in the General Requirements, Table 4.1. The exact number of rooms within the SCIF and their configuration to include the quantity of walls to be constructed to SCIF standards will be defined during Phase III of the RFP. The quantity of divisible spaces within each SCIF compartment are included in the total number of offices and/or conference training spaces defined in Tables 4.1 and 4.2.



(nn) Scientific Engineering Research Facility:

There is a requirement for the Developer to provide a Scientific Engineering Research Facility (SERF). The design concept is to collocate the SERF with the SPOs office area. The area shall have one entry point and is to be constructed SCIF-like following the construction guidelines referenced in Section 3. The SERF has been tentatively identified and is included in the General Requirements, Section 6.1. All user equipment and furnishings within the SERF shall be GFGL.

(oo) Classified Work Rooms:

There is a requirement for the Developer to provide common convenient Classified Work Rooms within the SAMS facilities. The design concept is to collocate a shared Classified Work Room within each SPO office area and a minimum of one work area per facility. The Classified Work Rooms shall have one entry point and are to be constructed SCIF-like following the construction guidelines in DCID 1/21. The Classified Work Rooms have been tentatively identified and are included in the General Requirements, Table 4.1.

## **6. MECHANICAL REQUIREMENTS**

### **6.1 FIRE PROTECTION:**

#### **6.1.1 Basic Function:**

(a) Provide services systems to protect life and property in accordance with the codes as specified in Section 3.0, comprised of the following elements:

(1) Fire Sprinkler and Extinguishing Systems: Elements which automatically extinguish fires.

(2) Class I Manual Standpipe Systems: Elements that deliver adequate supplies of water to locations in the building for manual fire-fighting.

(3) Fire Detection and Alarm: Elements required to detect fires and communicate fire location to building management, and public fire fighting agencies.

(4) Fire Protection Specialties: Elements required for manual fire-fighting by occupants.

(5) Provide automatic fire suppression for the entire building.

(b) Water Use (Comply in all respects with NFPA 14 and the California Building Code):

(1) Provide a permanent water supply for standpipes with a Fire Department Connection as required by code.

(2) Connect to Air Force water supply for sprinkler systems that are sufficient to extinguish fires inside the structure, Air Force to provide site distribution system sufficient for this purpose.

(c) Where fire protection elements also must function as elements defined within another element group, meet the requirements of both element groups.

### **6.1.2 Amenity and Comfort:**

- (a) Leakage: Provide systems that are leak-free.
- (b) Accessibility: Provide clearances around system components for service and use.
- (c) Sound: Provide audible alarm system to signal building occupants of fire hazard.
- (d) Convenience: Provide an automatic system to signal building occupants of fire.
- (e) Hazards: Design systems which minimize the potential for risk of injury and damage to property.
- (f) Substantiation:
  - Schematic Design: Fire protection areas identified.
  - Design Development: Fire protection zones indicated on the drawings with riser locations identified.
  - Construction: Functional performance testing in accordance with code.

### **6.1.3 Health and Safety:**

- (a) Path of Egress: Provide systems which safeguard path of egress.
- (b) Fire Source: Provide system materials that do not contribute to the spread of the fire.
- (c) Fire Spread: Provide systems to limit spread of fire from storage area to office area.
- (d) Chemical Exposure or Use: Provide systems that limit exposure of occupants to extinguishing agents.
- (e) The fire protection (sprinkler) zones, the fire alarm zones, the mechanical fire and smoke damper locations, and the architectural rated wall will all be designed in accordance with code. All the systems will incorporate electronic detection (if they do not already) and will report to the Building Automation System, which will display the alarm

condition, showing either a "safe" condition or "alarm" condition. Specifically, the fire alarm system and the fire protection system will report to the BAS.

#### **6.1.4 Structural:**

Seismic Design: Provide support systems that sustain static (dead) loads and that which is required by code.

#### **6.1.5 Durability:**

Vandalism: Provide systems that are tamper-resistant.

#### **6.1.6 Operation and Maintenance:**

(a) Ease of Use: Provide easy access to and working clearances around system components.

(b) Unauthorized Use: Provide systems which minimize activation and use by unauthorized persons.

(c) Substantiation:

- Schematic Design: System layout indicating operator interface locations.
- Design Development: System equipment locations indicated on the drawings and manufacturer's product data indicating products to be used.

## **6.2 HVAC - HEATING, VENTILATING, AND AIR CONDITIONING PERFORMANCE**

### **6.2.1 Basic Function:**

(a) Provide artificial means of controlling temperature, relative humidity (where specified), velocity, and direction of air motion in the interior spaces enclosed by the shell, and reduction of airborne odors, particulates, and contaminant gases.

(b) The SAMS mechanical requirements for the heating ventilating and air conditioning (HVAC) systems shall be designed to meet a variety of occupancy and equipment needs. The system equipment selection, quantity and operations will be required to service both 8 X 5 general purpose office areas and 24 X 7 equipment and operational areas. Additionally, the HVAC systems shall be capable of maintaining the specified environmental conditions for general office environments as well as tightly controlled environments for computer and telecommunications equipment.

- (c) The HVAC system consists of the following elements:
- Energy Supply: Elements which provide energy used to maintain building comfort.
  - Heat Generation: Elements required to heat building to maintain space comfort.
  - Refrigeration: Elements necessary to generate the cooling required to maintain building comfort.
  - Air Distribution: Elements required to distribute air to maintain building comfort.
  - Hydronic and Steam Distribution: Elements required to distribute chilled water, hot water or steam to maintain building comfort.
  - HVAC Controls: Elements required to control equipment which maintains building comfort.
  - Other HVAC Elements: Other elements required to maintain building comfort.
  - For mechanical systems design purposes, the heat load is calculated at ASHRAE standards
  - Special-Purpose Exhaust.

(d) Where HVAC elements also must function as elements defined within another element group, meet the requirements of both element groups.

### **6.2.2 Amenity and Comfort:**

(a) Space Temperature Set point:

(1) Thermal Performance: Design and construct to provide comfortable interior environment in accordance with the code and the following:

(2) Summer Interior Design Conditions:

- Daytime Setpoint: 72 deg F, plus or minus 2 deg F except as specified in the project program.

(3) Winter Interior Design Conditions

- Daytime Setpoint: 68 deg F, plus or minus 2 deg F except as specified in the project program.

(4) Outside Air Design Conditions:

- Summer Outside Air Design Temperature: 0.4 percent cooling design condition listed in the 1997 ASHRAE Fundamentals Handbook.

(5) Winter Outside Air Design Temperature: 99.6 percent heating design condition.

(6) listed in the 1997 ASHRAE Fundamentals Handbook.

- Energy Design Wind Speed: Comply with ASHRAE and prevailing Meteorological Standards.

### **6.2.3 Substantiation:**

(a) Closeout: Measurement of temperature and humidity in spaces with unacceptable fluctuations. One measurement in the summer (outdoor air temperature at ASHRAE parameter conditions) and one measurement in the winter(outdoor air temperature at ASHRAE parameter conditions), within first year of occupancy.

(b) Office areas have less stringent HVAC requirements but special consideration is required for temperature control and noise abatement in larger conference rooms and presentation center. Noise induced from airflow in ducting, actuation of air mixture valves or variable airflow controllers that produce sound levels outside of the ASHRAE sound criteria for that space type is not acceptable within these centers.

### **6.2.4 Health and Safety:**

(a) Emergency Power: Provide emergency power in accordance with code plus the following equipment:

(1) Air handler(s) & other mechanical equipment serving the Telephone Switch, Command Post, Consolidated Network Control Center, Base Network Control Center, Dial Central Office, telecommunications rooms, and the SCIF alarms.

(2) Electrical Shock Prevention: Provide a means of disconnecting power at each piece of equipment.

(3) Refrigerants: If a refrigerant based cooling system is utilized, it should comply with the Federal guidelines for ozone protection standards. Depending on the seating arrangements and floor plan configuration, thought should be given to individual climate control, or at least to a high level of zone control.

(b) Comply with the requirements of ASHRAE 15,

- Prevent release of refrigerant to atmosphere.
- Prevent exposure of occupants to hazardous refrigerants.

(c) Indoor Air Quality: Provide sufficient ventilation to obtain acceptable indoor quality, determined using the Ventilation Rate Procedure of ANSI/ASHRAE 62. Outside air requirements should meet the criteria in ASHRAE Standard 62, Ventilation for Acceptable Indoor Air Quality.

(d) Substantiation:

- Design Development: Engineering analysis.
- Occupancy: Field testing and survey of occupants.

### **6.2.5 Operation and Maintenance:**

(a) Systems: Design the system for efficiency, reliability, redundancy and ease of maintenance. As a minimum, all operational and equipment areas shall be serviced with a partially redundant HVAC system to minimize impacts from system failures and scheduled maintenance. A fail over system shall be incorporated to enable continued service without human intervention in the event of a failure in Mission Critical systems.

(b) The building HVAC system will consist of Rooftop VAV Package units, heating water plant, air distribution system with terminal reheat VAV boxes, and a DDC control system. The chilled and hot water system major components (chillers, pumps, boilers, and cooling towers) will have at least 15% redundancy in all Mission Critical Areas and in spaces that are expected to operate 7 days a week, 24 hours a day. Note: no additional redundancy is required for air handlers throughout the project.

(c) The chillers and associated pumps, piping, controls, etc. for the Mission Critical spaces and the first floor assembly areas will be located in a central location and may be on the roofs of the facilities for the entire SAMS Complex.

(d) The electrical services for the SAMS Complex will be located on grade adjacent to the same buildings that are being serviced.

(e) The package units will be localized to the building they serve and located as high as possible in that building. Penthouses with air handling equipment should be considered as a viable option.

(f) The mechanical design engineer may propose alternative design solutions, if in his opinion a more economical, maintainable, accessible, and energy efficient design approach. The need for local redundancy, however, cannot be compromised in mission critical systems or otherwise specified areas.

(g) The design calculations shall be submitted to the Air Force or his designee. This work can be performed on Carrier's E2011, Trane's Trace 700, or DOE's 2.0 software. The HVAC design calculations shall be performed using software capable of performing transfer functions based on hourly heating and cooling analyses. The software shall utilize local meteorological weather and solar radiation data. Utilize the latest version of one of the following programs:

- (1) Carrier's HAP (Hourly Analysis Program);
- (2) Trane's Trace 6000; or
- (3) DOE 2.0 based software.

(h) In accordance with Executive Orders #12873 and #12902, with the Air Force Environmentally Responsible Facilities Guide facility energy model and life cycle analysis will be prepared and presented. The building envelope, mechanical, and electrical systems shall be designed cooperatively in an attempt to meet energy budget guidelines as defined in the Federal military "A/E Guide" s. Similarly, the design shall follow the requirements of Federal energy code ASHRAE Standard 90.1-1999, Energy Standard for Buildings Except Low-Rise Residential Buildings. An attempt to outperform the energy standards as listed below should be discussed and agreed upon in the preliminary stages of the project.

(i) The Building Automation System (BAS) will be Automated Logic Corporation (ALC), the standard at LAAFB. It shall be tied into our Energy Management Control System (EMCS). The EMCS Direct Digital Control System (DDC) shall be all-electronic including the Variable Air Volume (VAV) boxes. For a detailed description refer to the Energy Management and Control System Design Guide.

(1) The BAS will conform to the following requirements:

- Central and single control to and from all the buildings in the SAMS Complex. The control center will be located on grade level. Each separate building in turn will have a separate control station to monitor and control equipment and systems in its specific building, but it will be slaved back to the central control station for the complex.
- The BAS will monitor the fire alarm, the fire protection (sprinkler) system, the power distribution gear (inclusive of the switchboards and motor control centers), the elevators, the generators, and have the capability of monitoring the security systems.
- The BAS will be supplied with interactive graphics utilizing detailed information regarding locations of equipment and systems served through architectural quality representations of the complex, its individual buildings, individual floors of each building, and individual areas served. The users should be able to touch the screen to select options including selection of specific equipment or specific areas for data.

(2) Base Automated System: DDC system description - Automated Logic Corporation products are the sole-source standard for all new construction and renovation projects at Los Angeles Air Force Base, El Segundo CA, and related sites under the control of LAAFB.

(j) All new construction and renovation projects shall interface into the existing Automated Logic Corporation DDC systems and databases including associated hardware, equipment and accessories. Manufacturer's products, including design, materials,

fabrication, assembly, erection, examination, inspection, and testing shall be in accordance with ASME 531.1 and NFPA 70, except as modified herein or indicated otherwise.

(k) The system shall provide the Direct Digital Control, Energy Management and Building Automation System for the air conditioning, heating and ventilating systems.

(l) Provide the DDC systems to maintain stable temperature control and all other conditions as indicated. The end-to-end accuracy of the system, including temperature sensor error, wiring error, A/D conversion, and display, shall be 1 degree F or less.

(m) Integrate the new ALC DDC system with the existing workstation currently located in Building 229, Base Civil Engineering for El Segundo. Provide laptop computer with all required software for field operations.

(n) Open protocol and interoperability will be the definitive standards of application. The building, at a minimum, should meet all applicable Federal, State and Local codes and standards. Additional standards include: ASHRAE, SMACNA, and AMCA. In this regard the following standards, guidelines and protocols will be instituted:

- (1) ASHRAE BACnet Standard
- (2) ASHRAE DDC Guidelines
- (3) Lonmark Standard Guidelines
- (4) ANSI Control Network Protocol

(o) The submittals for the control system will be due 60 and 90 days following award of the contract for construction. Copy commissioning authority on the submittals.

(1) The 60 day submittal will contain cut sheets of all equipment to be supplied on the project, a complete input/output matrix, and sequences of operation of all equipment and systems served.

(2) The 90 day submittal will contain a one line graph of the entire system architecture, an electronic copy of the BAS code, and the system graphics that will be displayed.

(p) In all cases the location of all mechanical equipment will be determined by the provision that full accessibility can be afforded to the Air Force's staff completely around 100% of all mechanical equipment for purposes of operation and maintenance. The chiller tube pull spaces can be accommodated by proximity location of the chillers to exterior doors easily operable during times of maintenance. Rooftop mechanical units and mechanical rooms will be located to facilitate access by maintenance personnel. Size mechanical rooms so equipment can be maintained, repaired, or replaced without having to remove walls, doors, or other equipment.

(q) The Developer and the mechanical design team will take economic advantage of all available rebates for energy efficient equipment and systems. They will also cooperate with similar rebate applications undertaken by the Air Force.

(r) The distribution of hydronic systems to the areas served will be a combination of reverse and direct return piping loops. Provide at a minimum 2 per floor. The mechanical designer will propose the most effective and economic sizing, location, and quantities as deemed necessary for the specific requirements of each area served.

(s) Zoning of the project will follow the specific departmental criteria defined by the Program. Where areas do not appear to be specifically addressed or appear to be only partially addressed, the area zoning will conform to the following criteria:

(1) Divisions and separations across every floor will accommodate SAMS Massing and Façade Guidelines adhering to the "Floor Plate and Typical Floor-Building Section Analysis" diagram in particular. (i.e. Open office landscape, closed office areas, etc.)

(2) All perimeter building areas will at a minimum be separated and zoned by exposure. Resulting corner areas will operate independently from either of the adjoining exposures and be accorded their own zones.

(3) Zones in no case will encompass more than 2,500 square feet of building net floor area.

(t) Design Criteria: In all cases the design shall comply with the latest edition of Title 24. (Propose variances as determined necessary by the mechanical design engineer, licensed in the State of California.) Design considerations should include impacts associated with maintenance and failures.

- Leaving Chilled Water Temperature: 42-45 degrees F.
- Entering Chilled Water Temperature: 55-65 degrees F.
- Leaving Heating Water Temperature: 180 degrees F.
- Heating Water Reset: Reset temperature based on outside air temperature.
- Entering Heating Water Temperature: 140-160 degrees F.
- Cooling Leaving Air Temperature: 50-55 degrees F.
- Heating Leaving Air Temperature: 90-110 degrees F.
- Entering Air DB and WB Temperatures: Per applicable ASHRAE Climatic Data

(u) HVAC Reliability: The HVAC load calculations are based upon three load sources: sensible heat load from lighting and occupants, personal heat load from appliances and accessories powered from utility power and the heat load generated from computers and telecommunications equipment powered from technical power. Loads attributed to utility power and technical power shall be calculated per ASHRAE design guidelines.

- (1) Chillers: Provide multiple chillers to deliver design load capacity (not less than two).
- For 2 Chillers: Size each at 60 percent of design load capacity.
  - For 3 Chillers: Size each at 50 percent of design load capacity.
  - For 4 Chillers: Size each at 40 percent of design load capacity.
- (2) Boilers: Provide multiple boilers to deliver design load capacity (not less than two in each location for any alternative option).
- For 2 Boilers: Size each at 60 percent of design load capacity.
  - For 3 Boilers: Size each at 50 percent of design load capacity.
  - For 4 Boilers: Size each at 40 percent of design load capacity.
- (3) Pumps: Provide multiple pumps to deliver design flow requirements (not less than two).
- For 2 Pumps: Size each at 100 percent of design flow.
  - For 3 Pumps: Size each at 50 percent of design flow.
  - For 4 Pumps: Size each at 33.3 percent of design flow.
  - Provide a stand-by pump for each chiller and boiler.
- (4) Substantiation:
- Schematic Design: Identification of design strategies to minimize HVAC disturbances.
  - Design Documents: Identification of equipment that requires redundancy.
  - Construction: Functional performance testing.
  - Occupancy:
  - If equipment is damaged or malfunctions within one year after completion, report of the cause of equipment damage or malfunctions.
  - Corrective Action: Provide corrective measures necessary to eliminate equipment damage and malfunctions.
  - Corrective Action Report: Identification of corrective measures implemented to protect HVAC equipment.

Verify that HVAC equipment is operating properly and without damage.

(v) Test, Adjust, and Balance (TAB) will be part of the project Quality Assurance program and as such will be provided by the commissioning authority. The assistance of an independent third party Commissioning Authority should be considered. These services should start at the inception of the project and extend through post construction system testing and documentation. The goals of the commissioning process should include:

- Improve energy performance;
- Improve operating strategies;
- Provide building system documentation;
- Improve operator training; and
- Ensure proper application of new technologies.

(w) These goals should ensure a smoother building turnover from Developer to Air Force, improve building performance, reduce Developer callbacks, and improve worker safety and productivity.

(1) TAB costs will not be the responsibility of the Developer. Coordination and conformance with the TAB agency, however, will be the responsibility of the Developer.

(2) Successful testing, adjusting, and balancing of the HVAC systems will constitute an essential criterion for completion of the mechanical work and acceptance of the systems involved by the Air Force.

(x) DDC Controls contractor/vender will conduct two levels of Quality Assurance to verify that the required installation and performance of the Building Automation System has been met.

(1) Static Commissioning:

- A point to point examination and documentation of the successful installation of the BAS system and its components in its entirety.
- The start up of all HVAC equipment and associated systems will not commence until this work has been completed and the documentation is received by the commissioning authority.

(2) Dynamic Commissioning:

- A point by point demonstration and documentation of the successful performance of the BAS system and its components in its entirety.

- The verification demonstrations of all HVAC equipment and associated systems will not commence until this work has been completed and the documentation is received by the commissioning authority.

The HVAC requirements are summarized in the following table.

**Table 6.1 HVAC Requirements**

Space Type	Temp.	Humidity	Notes
Office Space			1
Conference Rooms			1
Conference Facility			1
Presentation Rooms			1
Training Rooms			1
Specialty Areas			
Command Post	70F +/- 5F	50% +/- 20%	
BNCC	70F +/- 5F	50% +/- 20%	
SERF			1
Classified Work Room			1
SCIF	70F +/- 5F	50% +/- 20%	
Communications Space			
Consolidated NCc	70F +/- 5F	50% +/- 20%	
Classified Equipment Room	70F +/- 5F	50% +/- 20%	
Dial Central Office	70F +/- 5F	50% +/- 20%	
DCO Battery Room	70F +/- 5F	50% +/- 20%	2
Switchboard Operator Room	70F +/- 5F	50% +/- 20%	
MDF	70F +/- 5F	50% +/- 20%	
Cable Vault	70F +/- 5F	50% +/- 20%	
Telecommunications Closes	70F +/- 5F	50% +/- 20%	
Main Point of Presence (MPOP)	70F +/- 5F	50% +/- 20%	
Miscellaneous Spaces			
Photo Lab	70F +/- 5F	50% +/- 20%	
Video Lab	70F +/- 5F	50% +/- 20%	
Art Services			1
Business Centers			1
Facility Spaces			3
Notes:			
1. Shall be in compliance with ASHRAE standards for commercial offices. Design HVAC systems for maximum calculated air flow utilizing no heat / no cool operation with fresh air intake			
2. Provide positive ventilation capable of syncing with batter charge cycle.			
3. Temperature and humidity requirements shall not exceed manufactures recommended requirements for installed equipment			

## 6.3 ELECTRICAL SECTION

### 6.3.1 General Requirements:

(a) Provide electrical power with the appropriate characteristics to operate all electrically operated devices. Each SAMS building shall have the capability of providing four basic types of power:

(1) Non-essential Utility (NU) Power – for non-essential equipment and general purpose receptacles

(2) Essential Utility (EU) Power – for emergency lighting, essential HVAC, receptacles, alarm and security circuits

(3) Non-essential ADP (NA) (or technical) Power – for communications equipment, personal computers, printers and peripherals

(4) Essential ADP (EA) Power – for critical communications and computer-related equipment

(5) For mechanical systems design purposes, the heat load is calculated at ASHRAE standards

(b) Essential Power systems will include the required transfer switching devices to accommodate generator power as an alternate source to the Base electrical feed.

(c) ADP Power systems will include surge suppression and isolation systems such as K-13 rated transformers and Transient Voltage Surge Suppressors (TVSS) to deliver conditioned power to data processing devices.

(d) Uninterruptible Power Supplies (UPS) will be GFGL.

(e) The following tables provide estimated power loads for the SAMS project by area type.

**Table 6.2 Office Space Power Requirements**

Office Space	CPU (W)	Monitor (W)	TV (W)	Personal Printer (W)	STU/Peripherals (W)	Task Lighting (W)	Miscellaneous (W)	Notes
OL-1*	300	150	150	150	200	200	150	
OL-2*	300	150	150	150	200	200	150	
OL-3*	300	150	150	150	150	100	100	
OL-4*	300	150	0	150	100	100	100	
OL-5*	300	150	0	0	100	100	100	
SL-1*	300	150	0	0	100	80	100	
SL-2*	300	150	0	0	50	80	50	
SL-3*	300	150	0	0	50	80	50	

**Table 6.3 Conference Space Power Requirements**

Conference Spaces:	Tech Power							Utility Power			Notes
	O/H or Rear Projection/VTC System (W)	Desktop Projector (W)	VTC Credenza or cart (W)	Personal Computer (W)	Laptop (W)	Network Printer (W)	Television (W)	Copier (W)	Shredder (W)	Miscellaneous (W)	
CL-1	2800	0	0	450	1500	0	150	0	0	400	
CL-2	2800	0	0	450	1000	0	150	0	0	400	
CL-3	2800	0	0	450	1000	0	150	0	0	400	
CL-4	0	500	1000	450	800	0	150	0	0	400	
CL-5	0	500	0	0	500	0	150	0	0	400	
SCL-6	0	0	0	0	300	0	0	0	0	300	
SCL-7	0	0	0	0	300	0	0	0	0	300	
Conference Center	Note 1	0	Note 1	Note 1	0	0	Note 2	0	0	Note 3	
Presentation Room	2800	0	0	1350	0	0	Note 4	0	0	1000	
Court Room	800	0	0	2150	0	0	300	0	0	1000	
<b>Notes:</b>											
1. Allow for one 800 W projector, one 1000 W VTC card and one 450 W personal computer per partitioned area.											
2. Allow for two 150 W televisions per partitioned area.											
3. Allow for 1000 W of miscellaneous utility power load per partitioned area.											
4. Allow for one 150 W television placed every 30 ft along side walls.											
5. Allow for one 450 W PC per seat											

**Table 6.4 Training Space Power Requirements**

Training Spaces:	Tech Power				Utility Power		Notes
	Overhead Projector (W)	Each Student Area (W)	Television (W)	Miscellaneous (W)		Misc. Loads (W)	
CZ Training Room	800	450 W per student	300	500		500	
CL Training Room	800	450 W per student	300	500		500	
AX Training Room	800	450 W per student	300	500		500	
DSMA Training Room Lg	1600	450 W per student	900	1500		1500	
DSMA Training Room Sm	800	450 W per student	300	500		500	
FM Training Room	1600	450 W per student	600	1000		1000	
MT Training Room	800	450 W per student	600	1000		1000	
PK Training Room	800	450 W per student	300	500		500	
XPM Training Room	1600	450 W per student	600	1000		1000	
61 CS Training Room Lg	1600	450 W per student	600	1000		1000	
61 CS Training Room Sm	800	450 W per student	300	500		500	

**Table 6.5 Specialty Space Power Requirements**

Specialty Space:	Tech Power					Utility Power		Notes:
	Rack/Server Suite Power (W)	Console Power (W)	Personal Computer (W)	Printer & Business Machine (W)	Radios (W)	Miscellaneous (W)	Noise Generator	
Classified Work Area	4000	0	450W ea	3000	0	500	0	
MT SERF	4000	0	450W ea	3000	0	500	0	
Command Post Command Center	0	3000	0	3000	1000	500	0	
Satellite CLASSIFIED Equip. Rm. (CER)	4000	0	900	1000	0	300	0	
SCIF								
SCIF Equipment Room	10000	0	0	0	0	500	300	
IN								
Reservist Lab	0	0	10800	1500	0	500	-	
Research Center	0	0	6750	1500	0	500	-	
Computer Lab	0	0	8100	1500	0	500	-	
IN/PWW Equipment Room	28000	0	0	0	0	500	-	
Library (1 Large Room)	0	0	4500	3000	0	500	-	
PWW Server Room	10000	0	9000	0	0	500	-	
IN Server Room	0	0	8400	0	0	500	-	
XR								
Secret Equipment Room	20000	0	0	0	0	500	-	
Secret Computer Room	20000	0	13500	1500	0	500	-	
Top Secret Computer Room	4000	0	9000	1500	0	500	-	
Blue Room	2000	0	1250	0	0	500	-	1
Notes:								
1. 2000 W includes VTC and projection equipment								

**Table 6.6 Miscellaneous Space Power Requirements**

Miscellaneous Space	Tech Power			Utility Power		Notes:
	Production Equipment (W)	Overhead Projector & VTC System (W)	Personal Computers (W)	Production Equipment (W)	Miscellaneous (W)	
<b>61 CS/SCSV</b>						
<b>Photo Lab</b>						
Development Room	0	0	0	20000	1000	
Studio	4000	0	0	8000	1000	
Digital Development	12000	0	1800	2000	1000	
Office	0	0	3600	0	1000	
Storage	0	0	0	0	1000	
<b>Video Lab</b>						
Editing Suite	10000	0	450	0	500	
Tape Library	0	0	0	0	500	
Dubbing Room	2000	0	450	0	500	
Viewing Room	0	2800	0	1000	500	
Office Area	0	0	3600	0	1000	
<b>Art Services</b>						
Work Room	0	0	0	40000	1000	
Office/Work Area	0	0	2700	0	1000	
Processing Room	0	0	0	4000	1000	
Storage	0	0	0	0	1000	
<b>Presentations</b>						
VTC	0	2800	1350	0	1000	
Board Room	0	2800	450	0	2000	
Office Area	0	0	2700	0	1000	
Storage	0	0	0	0	1000	
Conference Room	0	2800	1350	0	2000	
<b>Business Center</b>						
	4800	0	0	3200	1000	
<b>Consolidated Club</b>						
	0	2800	10000	0	80000	
<b>Child Development Center</b>						
	0	0	10000	0	40000	
General Note: These power requirements must be validated by the government during the design process						

**Table 6.7 Communications Space Power Requirements**

Communications Space	Tech Power		Utility Power		Notes:
	Rack Power (W)	Misc Outlets	Tools (W)	Battery Racks (W)	
Cable Vault (Entrance Facility)	Minimal Active Communications Equipment				
Main Distribution Frame (MDF)	Minimal Active Communications Equipment				
Telecomm Room (TR)	14000	0	500	0	
Main Point of Presence (MPOP)	26000		1000		
Dial Central Office (DCO)	60000	0	500	0	1
DCO Battery Room	0	0	500	11000	
Switchboard Operator Room	4000	2250	500	0	2
Consolidated NCC (CNCC)	91000	9000	2000	0	
CLASSIFIED Equipment Room (CER)	30000	0	500	0	
Satellite Classified Equipment Rm (CER)	14000	0	500	0	
<b>Notes:</b>					
1. Actual power requirement will be dependent on the type and manufacturer of switch chosen.					
2. Personal computer power based on 5 operators at 450 W per computer.					

(f) The power requirements for facility spaces such as Electrical and Mechanical Rooms is dependent on the building design. Other facility areas shall be calculated based upon sensible heat loads only.

(g) The electrical system comprises the following elements:

(1) Electrical Energy Generation: Utility power sources, engine-generator systems, battery power systems (GFGI), uninterruptible power supply systems (GFGI) and unit power conditioners (GFGI).

(2) Service and Distribution: Service entrance equipment, distribution equipment, transformers, motor control equipment, service and feeder wiring (conductors and raceways), monitoring, safety and control equipment, and other elements required for a complete functional system.

(3) Branch Circuits: Branch circuit wiring and receptacles and other branch circuit wiring systems.

(h) Utility Revenue Meters: Meter incoming electrical service on the low-voltage side of the service transformer (secondary metering).

(i) Substantiation: Continuity test of wiring systems prior to functional performance test.

### **6.3.2 Exterior Electrical Equipment:**

(a) All Electrical systems and wiring shall conform to NFPA 70 (National Electric Code - 2002), NFPA 101 (Life Safety Code), NFPA 780 (Lightning Protection Code), and IEEE C2 (National Electric Safety Code).

(b) Each SAMS building shall have a single utility area where facility equipment such as generators, transformers and chillers are located. This area shall be located out of sight of main building entrances and courtyards, but accessible to service roads and equipment maintenance vehicles. The external equipment area shall be fenced and provided with force protection bollards around the perimeter. The space shall be sized to accommodate two transformer pads, two generator pads and chiller pads or other facility equipment as required.

(c) All exterior equipment shall be mounted on individual concrete pads, so that the distance between equipment items is no less than 10', and the personal egress space around pad mounted equipment is no less than 40". Transformer pad size shall be a minimum of 6'x8'. Generator pads shall be a minimum of 28'x8' with a 6" containment wall around the perimeter. Concrete shall be monolithic pour and shall be Class A 3000 psi.

(d) Each SAMS building shall have a minimum of one transformer per building to convert the Base electrical feed to 480/277 Volts(V), with appropriate conveyances and feeders to the main electrical room to accommodate the total capacity of the transformer. The second transformer pad, if not immediately used, shall be stubbed out with identical conveyances and feeders to the main electrical room.

(e) Provide electrical wiring pedestals at each generator pad and stub out both pads to the main electrical room. Size conveyances, ground wires and feeders to accommodate one 500KVA GFGI transformer at each pad.

### **6.3.3 Exterior Grounding:**

(a) Install a ring ground around each building IAW NEC Article 250-81 (d) with evenly-spaced ground rods and test wells. The impedance to ground shall be no greater than 5 Ohms. Bond all equipment and other grounding systems to the earth electrode IAW NEC Article 250-81.

(b) Install a ring ground around each pad with a minimum of two ½" x 8' minimum size ground rods, one with a test well.

- (c) Install one ½" x 8' minimum size ground rod per light pole.

#### **6.3.4 Interior Electrical Equipment:**

(a) There shall be one main electrical equipment room per SAMS building. The room must be accessible, and as near to the pad-mounted exterior equipment area as possible. Size the room to accommodate Protection Equipment, Main Electrical Switch Board (MSB), Electrical Distribution Panels, transfer switches, transformers and circuit breaker panels feeding receptacles and devices in the immediate surrounding area. Allow extra space for a future building UPS and UPS transfer switch system.

(b) Small electrical rooms shall be provided on each floor to provide electrical branch circuits to each 10,000 sq ft of usable floor space. The rooms shall be equal in number and located adjacent to each Telecommunications Room. Size each room to accommodate a minimum of three circuit breaker panels and any transformer necessary for 208/110V panels, if not included in the Main Electrical Room. Each electrical room in non-SCIF areas shall have a minimum of the following:

- One NU circuit breaker panel
- One NA circuit breaker panel
- One EU circuit breaker panel in a minimum of 50% of electrical rooms
- One EA circuit breaker panel in a minimum of 50% of electrical rooms

(c) Provide one electrical room within the main SCIF, which will serve as a singular SCIF entrance facility for electrical and communications cables. Size the electrical room to accommodate a minimum of eight circuit breaker panels and four power line filters. The SCIF electrical room shall have a minimum of one of each type of circuit breaker panel. If separate RED power is required IAW NSTISSAM TEMPEST 2/95, a minimum of two of each type of circuit breaker panel is required. Tempest shielding is required at the equipment level.

(d) Provide one electrical room within each SPO's SCIF area, which will serve as a singular SCIF entrance facility for electrical and communications cables for the particular SCIF. This electrical room may be consolidated within the equipment room.

(e) Configuration: Design wiring and protective devices so that outages caused by local overloads do not affect unrelated areas or systems.

(f) Provide all switchboards with adjustable rate setting switches.

(g) Branch-Circuit Panelboards:

- Provide a dedicated panelboard for lighting that is separate from panel boards serving equipment and sensitive electronic equipment.

- Provide individual power and lighting panelboards at each classified and critical area, at the SCIF, at the SERF, at the Command Centers, etc.

(h) Motor Control: Provide motor control centers for each group of 5 motors. Provide motors with the appropriate protective, control, and indicating devices.

(i) Locate monitoring read-out at one central location.

(j) Monitoring: Provide local and remote monitoring of the following per building:

(k) Switchboard Monitoring:

(1) Power Analysis Values:

- Output voltage of each phase; phase-to-phase and phase-to-neutral.
- Output current; each phase and ground.
- Real power; per phase.
- Reactive power; per phase.
- Apparent power; per phase.
- Power factor; per phase.
- Frequency.

(2) Demand Readings:

- Demand current; per phase and peak.
- Average power factor; 3-phase total.
- Demand real power; 3-phase total.
- Demand apparent power; 3-phase total.
- Demand reactive power; 3-phase total.
- Coincident reading.
- Predicted Demands.

(l) Locate monitoring read-out at one central location.

(m) Motor Control Center Monitoring at main switch board:

(1) Power Analysis Values:

- Output voltage of each phase; line-to-line and line-to-neutral.
- Output current; each phase and ground.
- Real power; per phase.
- Reactive power; per phase.
- Apparent power; per phase.

- Power factor; per phase.
- Frequency.

(2) Voltage Regulation: Within 3 percent of design voltage at all branch receptacles.

### **6.3.5 Distribution Equipment:**

(a) All electrical distribution equipment must be able to withstand maximum fault current without other current-limiting devices. Copper terminating equipment located at the building entrance facility will be equipped with primary protectors In Accordance With (IAW) UL497 and secondary protectors IAW UL497A.

(b) The MSB will accept a 480/277V feed from the building transformer and be capable of delivering power for all four types of distributed power. The MSB shall be equipped with TVSS and shall be sized to accommodate 125% of the total capacity of the distribution panels and other loads it directly feeds in mission critical areas requiring 24/7 operations. Spare cubicles shall be equipped with draw out mechanisms ready to accept circuit breakers for future growth.

(c) Distribution panels for each type of power shall be sized to accommodate 125% of total rated load of all circuit breaker panels served, and include circuit breakers for unused positions in mission critical areas requiring 24/7 operations.

(d) The Essential Utility Distribution Panel shall have the following characteristics:

(1) A 480/277V panel providing power for 24x7 HVAC & emergency lighting

(2) The panel shall also provide 208/110V power distribution for receptacles, strobe lights & electronic security

(3) The panel shall be sized to accommodate 125% of total capacity of all EU circuit breaker panels in mission critical areas requiring 24/7 operations.

(e) Provide a 480/277V tie circuit breaker system or Transfer Switch system to switch Essential Utility Distribution Panel feed from the MSB to generator power where emergency power is required. The Transfer Switch shall be capable of running in automatic or manual mode. A Loss-of-commercial power alarm shall be routed to the Command Post for manual transfer switch operation. The Transfer Switch or Tie Circuit breaker system shall be connected to one or both generator pedestals, as determined by the government during the design-build process.

(f) The Non-Essential Utility Distribution Panel shall have the following characteristics:

(1) A 480/277V panel for non-essential HVAC, lighting and other facility equipment

(2) The panel shall also provide 208/110V power distribution for general-purpose receptacles, shredders, copiers, kitchen and break areas, and small equipment items.

(3) The panel shall be sized to accommodate 125% of total capacity of all NU circuit breaker panels in mission critical areas requiring 24/7 operations.

(g) The ADP (Technical Power) Distribution Panel(s) shall have the following characteristics:

(1) A 208/110V distribution panel for computer or communications-related equipment.

(2) Provide a 480-to-208V K-13 type transformer to feed the ADP distribution panel(s). Size the transformer to accommodate 125% of the total capacity of the panels it feeds in mission critical areas requiring 24/7 operations.

(h) Provide a singular panel with a tie circuit breaker system segmenting branch circuits into Non-essential (fed from MSB only) and Essential (generator backup), or provide two separate panels, one essential and one non-essential.

(i) Provide a 208/110V tie circuit breaker system or Automatic Transfer Switch (ATS) system to switch the essential ADP feed from MSB to generator power.

(j) The Transfer Switch or Tie Circuit breaker system shall be connected to - generator pedestal, as determined by the government during the design-build process.

(k) Locate all circuit breaker panels in dedicated electrical rooms, if possible. Panels located in areas other than electrical or equipment rooms shall be flush mounted. All panels must be accessible, as defined by NEC Article 100.

(l) Panels located in the SCIF electrical room shall only feed circuits within the SCIF. No branch circuits within the SCIF shall originate from circuit breaker panels outside the SCIF.

(m) Wherever possible, ensure that each panel only provides circuits for the same floor in which the panel is located. Exceptions are:

- (1) Roof may be fed from top floor panel
- (2) Exterior perimeter and lighting shall not be fed from the basement

(n) Avoid daisy-chaining circuit breaker panels. Each panel should be fed separately from its distribution panel, or from a 277/480V panel and transformer.

(1) Allowable panel types are:

- Busses Greater than 125A, 30 pole minimum
- Busses 125A or less, 24 pole minimum

(o) Circuit breaker panels shall not be loaded to more than 75% of their maximum rated value, and breaker positions in any one panel must only be 80% populated at building occupancy. Include a minimum of three spare circuit breakers per panel.

(p) NA and EA Tech power panels must be fed from K-13 rated isolation transformers, must include internally mounted TVSS's, and must have a neutral buss sized to 200% of the panel's rated Amperage.

(q) Junction Boxes, Consolidation Points, Pull Points, Conduit boxes and other electrical enclosures must be accessible, as defined by NEC Article 100

(r) Emergency Power Off (EPO) Switches shall be required IAW NEC Article 645-10 for all equipment rooms and the SCIF electrical room. EPO switches shall provide disconnecting means for all ADP circuit breaker panels and all HVAC units located in that area.

### **6.3.6 Interior Grounding:**

(a) Provide a Telecommunications Main Grounding Busbar (TMGB) IAW ANSI TIA/EIA 607 in the main Telecommunications Equipment Room (ER), as close to the service entrance as practicable, and bond it directly to the Electrical Service Entrance Ground. Bond all primary cable protection equipment to the TMGB.

(b) Provide a lightning protection system in accordance with NFPA 780 and bond to the building's earth electrode system.

(c) All copper bonding conductors for telecommunications equipment and conveyance systems shall be stranded and shall be sized to a minimum of #6 AWG. Bonding conductors shall be made as short as possible and routed with minimum bends or changes in direction.

(d) Provide TGBs IAW ANSI TIA/EIA 607 in all TRs, telecommunications equipment rooms, and other special purpose raised floor areas with rack-mount equipment. Mount TGBs under the raised floor with minimum 2.4" insulators. If TGBs are installed in a room without a raised floor, mount them a minimum of 7' high on a telecommunications backboard and cover with a clear protective shield.

(e) Bond each TGB to telecommunications equipment and/or rack grounding bars located in that room, and to other permanent metallic systems in the area, if

accessible. If building steel is not used for lightning protection, bond the TGB to the building steel.

(1) Bond Black TGBs to TMGB via a Telecommunications Bonding Backbone (TBB).

(2) Red TGBs are individually bonded to the TMGB.

(f) Provide a TBB IAW ANSI TIA/EIA 607 within each building.

The TBB shall be designed to take as direct a path as possible from the farthest BLACK TGB to the TMGB. For larger buildings, multiple TBBs may be used to decrease the distance to the TMGB. Interconnect multiple TBBs at the ends farthest from the TMGB.

(g) In rooms with Red non-TEMPEST-certified telecommunications equipment, provide a Red Ground IAW NSTISSAM TEMPEST 2/95 and AFSSM 7011, Section 8.35.4. Where possible, implement a Red equipotential grid under the Red equipment areas of the raised floor in SCIFs and Secret equipment rooms. For areas without raised floors, a single-point ground with 1/0 AWG insulated cable is acceptable. Bond Red Ground (grid or single point) to a Red TGB. Maintain 5 cm spacing from Black signal, power and ground wires, or 15 cm when wires are run in parallel.

(h) Where possible, provide a BLACK equipotential grid under raised floors in black equipment areas. For areas without raised floors, a single-point ground with 1/0 AWG insulated cable is acceptable. Maintain spacing from Red signal, power and ground wires as specified for Red ground.

(i) Separate RED and BLACK Power systems shall be required IAW NSTISSAM TEMPEST 2/95 if the power exiting classified areas is less than 100 KVA. Red power requirements for areas other than the SCIF shall be met with the use of in-line GFGI UPS equipment.

### **6.3.7 Red / Black Power:**

(a) If Red power is required in the SCIF, provide LC power line filters installed between the power cabling entry point and each Red circuit breaker or distribution panel in the SCIF electrical room. Filters and Red electrical panels shall be placed as close to the cabling entry point as possible. Red power lines shall be kept separate from Black conductive signal lines, Black power lines and Black equipment by at least 6 inches.

(b) Refer to the following documents for further information:

- DCID 1-21
- NSTISSAM TEMPEST 2/95, para 4.7.2
- AFSSM 7011, para 8.26 through 8.33 and Attachment 16

(c) Circuit breaker panels for Black power shall be located in the SCIF Electrical Room on a separate wall from the Red power equipment. Black power lines shall be

kept separate from Red conductive signal lines, Red power lines and Red equipment by at least 6 inches.

### **6.3.8 Miscellaneous Power Requirements:**

(a) The standard branch circuit shall be 20A unless otherwise specified. The standard will be increased as needed where the equipment load, manufactures specification, or design require a higher current branch circuit. The following items require dedicated circuits:

- Copiers
- Shredders
- Vending Machines
- Overhead Projectors
- Equipment Racks and Frames
- All Essential Power receptacles and devices not located in office areas

(b) Size feeder cables to accommodate entire rated load of the device it serves (i.e., breaker panel) and IAW NFPA 70, minimum size #12 AWG. Feeder or bus taps are not permitted. All cables shall be installed in separate raceways or conduits from telecommunications cabling

(c) No more than three single-phase circuits shall be contained in a single conduit, except for homeruns and furniture feeds, as allowed by code. Feeders from separate sub-distribution systems shall not be contained in the same conduit. Conveyances shall be sized to accommodate the maximum number of feeder cables appropriate for the type of use required, but no smaller than 1/4".

(d) Provide circuits and receptacles to all areas following the guidelines established in the NEC. In addition to those listed above, the following circuiting restrictions apply:

- (1) One duplex receptacle per single phase EA Power circuit, except when supplying office work areas
- (2) Three duplex receptacles per 120V, 20A EA Power circuit for office work areas.
- (3) Four duplex receptacles per 120V, 20A single phase NA power circuit
- (4) One duplex receptacle per single phase EU power circuit
- (5) Eight duplex receptacles per 120V, 20A single phase NU power circuit for general purpose receptacles

(6) Two duplex receptacles per 120V, 20A single phase NU power circuit for hallways, receptacles used for floor cleaning machines, and drinking fountains

(7) One duplex receptacle per 120V, 20A single phase NU power circuit for coffee and vending areas

(e) The following tables provide the recommended distribution of receptacles for the SAMS project by power and area type.

**Table 6.8 Office Space Receptacle Requirements**

Note: Each space, including SL-3's shall have at least one tech power and one utility power wall/panel/floor duplex receptacle.

Office Space:	Tech Power	Utility Power	Notes
	Wall/Panel Duplex Receptacles	Wall/Panel Duplex Receptacles	
OL-1	4	5	1,2
OL-2	4	5	1,2
OL-3	3	4	1,2
OL-4	2	3	1,2
OL-5	2	3	1,2
SL-1	1	1	3
SL-2	1	1	3
SL-3	1	1	3
<b>Notes:</b>			
1. Space outlets evenly with a minimum of one utility outlet on each wall			
2. 25% of Tech Power receptacles in SCIF offices shall be Essential Tech Power			
3. Place one duplex utility power receptacle per 40 linear ft of exposed hard-wall space in SL areas			

**Table 6.9 Conference Space Receptacle Requirements**

Conference Spaces:	Tech Power							Utility Power			Notes:
	Rear Projector (Ceiling J-Box)	O/H Projector (Duplex Above-Ceiling Receptacle)	Duplex Floor Receptacle	Podium (Duplex Floor Receptacle)	Clock/Display Duplex Receptacles (18" Below Finished Ceiling)	VTC Control, cameras & sound system	Perimeter Duplex Wall/Panel Receptacle	Motorized Screen (Ceiling J-Box)	Projector Lift (Ceiling J-Box)	Perimeter Duplex Wall/Panel Receptacle	
CL-1	1	2	2	1	2	3	10	2	2	6	1, 11
CL-2	1	2	2	1	2	3	8	2	2	5	1, 11
CL-3	1	1	2	1	1	2	6	1	1	5	1, 11
CL-4	0	1	2	0	0	2	5	1	1	4	1
CL-5	0	1	2	0	0	0	4	1	1	3	1
SCL-6	0	0	1	0	0	0	3	0	0	2	1
SCL-7	0	0	1	0	0	0	2	0	0	2	1
Conference Center	0	Note 2	Note 3, 5	0	Note 4, 5	0	Note 6	0	Note 2	Note 6	
Presentation Room	1	2	2	3	Note 4	3	Note 7	2	2	Note 7, 8	11
Court Room	0	1	7	0	2	0	Note 7	1	1	Note 8	10

**Notes:**

1. Locate floor receptacles under conference/work tables
2. Place one ceiling projector duplex receptacle and one projector lift J-Box in each partitioned area
3. One quad receptacle per 400 ft<sup>2</sup> of floor space. Covers shall be load bearing, flush with floor, and coordinated with room finish.
4. Place recessed clock/display receptacles 18" Below Finished Ceiling, 1 per 40 ft of linear wall space.
5. Coordinate placement of receptacles or J-Boxes within partitioned areas.
6. One Tech Power and one Utility Power duplex receptacle per every 12 ft of linear wall space, plus one per support column.
7. Place one duplex receptacle 18" Below Finished Ceiling and one 18" Above Finished Floor in each corner of the room.
8. Place one duplex utility power wall receptacle every 16 ft of linear wall space.
9. Place Wall receptacles at the rear of the room for LAN equipment, printers, photocopiers and shredders.
10. Coordinate placement of floor receptacles under tables/desks and at the front of the spectator gallery.
11. Each Room will have either a rear projection or an overhead projection system, but not both.

**Table 6.10 Training Space Receptacle Requirements**

Training Space:			Tech Power					Utility Power			Notes:
	Size (GSF)	Occupancy	Projector (Above-Ceiling Duplex Receptacle)	Each Student Area (Under-Table Duplex Outlet)	Television (Duplex Ceiling Receptacles)	Perimeter Duplex Wall Receptacles	Podium (Duplex Floor Receptacle)	Motorized Screen (Above-Ceiling J-Box)	Projector Lift (Above-Ceiling J-Box)	Perimeter Duplex Wall Receptacles	
CZ Training Room	400	8-12	1	1/ student	2	Note 1	0	1	1	Note 1	1
CL Training Room	230	5-7	1	1/ student	2	Note 1	0	1	1	Note 1	1
AX Training Room	350	7-10	1	1/ student	2	Note 1	0	1	1	Note 1	1
DSMA Training Room Lg	3000	100	2	1/ student	6	Note 1	1	2	2	Note 1	1,2
DSMA Training Room Sm	450	9-15	1	1/ student	2	Note 1	0	1	1	Note 1	1
FM Training Room	980	30	2	1/ student	4	Note 1	1	2	2	Note 1	1,2
MT Training Room	900	18-26	1	1/ student	4	Note 1	0	1	1	Note 1	1,2
PK Training Room	300	6-10	1	1/ student	2	Note 1	0	1	1	Note 1	1
XPM Training Room	980	30	2	1/ student	4	Note 1	1	2	2	Note 1	1,2
61 CS Training Room Lg	500	10-15	2	1/ student	4	Note 1	1	2	2	Note 1	1,2
61 CS Training Room Sm	300	6-10	1	1/ student	2	Note 1	0	1	1	Note 1	1
<b>Notes:</b>											
1. 1 per 12 ft = 1 duplex receptacle per 12 ft of linear wall space											
2. Place television receptacles in pairs on opposite walls. Space each pair of receptacles evenly among partitioned areas											

**Table 6.11 Specialty Space Receptacle Requirements**

Specialty Space:	Tech Power				Utility Power		Notes:
	20A Essential Power Circuits - Rack	30A 208/220V Essential Power Circuits - Racks	Essential Power Wall/Panel Duplex Receptacles	Non-Essential Power Wall/Panel Duplex Receptacles	Essential Utility Duplex Wall Receptacles	Non-Essential Utility Duplex Wall Receptacles	
Classified Work Area	2	0	0	1 per seat	1 per 4 NUs	1 per 12 ft	1
MT SERF	2	0	0	1 per seat	1 per 4 NUs	1 per 12 ft	1
Command Post Command Center	0	0	Note 2	0	Note 3	1 per 12 ft	
BNCC	2	0	4	0	1	4	
SCIF							
SCIF Equipment Room	5	0	0	0	4	4	
IN							
Reservist Lab	0	0	24	0	1 per 4 NUs	1 per 12 ft	1
Research Center	0	0	0	15	1 per 4 NUs	1 per 12 ft	1
Computer Lab	0	0	18	0	1 per 4 NUs	1 per 12 ft	1
IN/PWW Equipment Room	14	0	0	0	1 per 4 NUs	1 per 12 ft	1
Library (1 Large Room)	0	0	0	10	1 per 4 NUs	1 per 12 ft	1
PWW Server Room	0	5	15	0	1 per 4 NUs	1 per 12 ft	1
IN Server Room	0	0	14	0	1 per 4 NUs	1 per 12 ft	1
XR							
Secret Equipment Room	10	2	0	0	1 per 4 NUs	1 per 12 ft	1
Secret Computer Room	10	2	0	30	1 per 4 NUs	1 per 12 ft	1,4
Top Secret Computer Room	2	0	0	20	1 per 4 NUs	1 per 12 ft	1
Blue Room	0	0	8	0	0	8	5

**Notes:**

1. NU = Non-essential Utility Wall receptacles, 1 per 12 ft = 1 duplex receptacle per 12 linear feet of wall space
2. One Essential Tech Power receptacle per every other console bay, plus four in consolidated business area for printers
3. 1 Duplex receptacle per 12 linear feet of wall space, plus four in business area for copiers & shredders
4. Place 20 duplex receptacles in the walls, 10 duplex outlets in the floor
5. Provide the same AV presentation receptacles and junction boxes as a CL-4 conference room

**Table 6.12 Miscellaneous Space Receptacle Requirements**

Miscellaneous Space	Tech Power			Utility Power			Notes:
	Duplex Wall Receptacles	Duplex Floor Receptacles	Overhead Projector Ceiling Receptacle	Duplex Wall Receptacles	Motorized Screen Ceiling J-Box	Projector Lift Ceiling J-Box	
<b>61 CS/SCSV</b>							
Photo Lab							
Development Room	0	0	0	12	0	0	
Studio	4	0	0	8	0	0	
Digital Development	10	0	0	4	0	0	
Office	2 per seat	0	0	1 per 12 ft	0	0	1
Storage	0	0	0	1 per 12 ft	0	0	1
<b>Video Lab</b>							
Editing Suite	1 per 12 ft	0	0	1 per 12 ft	0	0	1
Tape Library	0	0	0	1 per 12 ft	0	0	1
Dubbing Room	6	0	0	1 per 12 ft	0	0	1
Viewing Room	4	0	1	1 per 12 ft	1	1	1
Office Area	2 per seat	0	0	1 per 12 ft	0	0	1
<b>Art Services</b>							
Work Room	0	0	0	1 per 6 ft	0	0	
Office/Work Area	2 per seat	0	0	1 per 12 ft	0	0	1
Processing Room	0	0	0	1 per 12 ft	0	0	1
Storage	0	0	0	1 per 12 ft	0	0	1
<b>Presentations</b>							
VTC	1 per 12 ft	2	1	1 per 12 ft	1	1	1,2
Board Room	8	2	1	8	1	1	1,2
Office Area	2 per seat	0	0	1 per 12 ft	0	0	1
Storage	0	0	0	1 per 12 ft	0	0	1
Conference Room	1 per 12 ft			1 per 12 ft			1,2
<b>Business Center</b>							
	8	0	0	6	0	0	
<b>Consolidated Club</b>							
	Note 3	Note 4	1	Note 5	1	1	6
<b>Child Development Center</b>							
	Note 3	0	0	Note 5	0	0	6
<b>Notes:</b>							
1. 1 per 12 ft = 1 duplex receptacle per 12 feet of linear w all space							
2. Tech Power circuits to be on Essential Power							
3. 2 duplex receptacles per office work area							
4. Floor receptacles 1 per 400 sq ft or as required in large function areas							
5. 1 duplex receptacle per 12 ft of linear w all space, plus one duplex receptacle per food service, bar or kitchen device							
6. Power circuits/receptacles for additional equipment to be coordinated with Government							

**Table 6.13 Communications Space Receptacle Requirements**

Communications Space	Tech Power					Utility Power		Notes:
	20A Essential Power Circuits - Racks	30A 208V 3-Phase Essential Power Circuits - Racks	20A Non-Essential Power Circuits - Racks	30A Non-Essential Power Circuits - Racks	Wall/Panel Duplex Receptacles	Essential Utility Duplex Wall Receptacles	Non-Essential Utility Duplex Wall Receptacles	
Cable Vault (Entrance Facility)	0	0	1 per rack	0	0	1	4	1,5
Main Distribution Frame (MDF)	0	0	1 per rack	0	0	2	8	1
Telecomm Room (TR) Single	0	0	4	4	0	1	4	
Telephone Room (TR) Double			5	4	0	2	5	
Main Point of Presence (MPOP)	0	0	1 per rack	2	0	1	Note 6	1,6,7
Dial Central Office (DCO)	0	3	0	0	0	2	8	
DCO Battery Room	5	0	0	0	0	1	4	
Switchboard Operator Room	2	0	0	0	6	1	6	
Consolidated NCC (ER)	50	3	0	0	Note 2	Note 3	Note 4	
CLASSIFIED NCC (CER)	12	0	0	0	0	1	4	
Satellite Classified Equip Rm (CER)	5	0	0	0	0	1	4	
<b>Notes:</b>								
1. Number of racks will be determined by number and configuration of SAMS buildings.								
2. 1 duplex receptacle per 12 ft of linear wall space in server room, TIF, and assembly area, plus 3 workstation outlets in server room.								
3. 1 essential duplex receptacle for every four non-essential utility receptacles in all CNCC rooms.								
4. 1 duplex receptacle per 12 ft of linear wall space in all CNCC rooms.								
5. Cable Vault receptacles must be GFI.								
6. 1 duplex receptacle per 12 ft of linear wall space								
7. Commercial Equipment Power is estimated								

**Table 6.14 Facility Space Receptacle Requirements**

Facility Space	Tech Power	Utility Power	Notes:
	Duplex Wall Receptacles	Duplex Wall Receptacles	
Computer Storage Room	4	7	
File Storage Room	0	7	
Janitor Closet	0	1	
Electrical Room	2	1 per 16 ft of linear wall space	
Mechanical Room	2	1 per 16 ft of linear wall space	
Hallways	0	1 per 40 ft of linear wall space	
Restrooms	0	1 GFI per room	1
Lobby	0	1 per 40 ft of linear wall space	2
Stairwell	0	1 at basement level plus every 2nd floor	3
Entry and Stairway Doors	1 per doorway	0	4,5
Secured Interior Doorways	1 per doorway	0	4
Building Exterior	0	1 GFI receptacle per 500 ft	
Roof	0	1 GFI receptacle per antenna grid	
<b>Notes:</b>			
1. In bathrooms with showers, install one duplex GFI receptacle per lavatory			
2. Stairwell receptacles shall be on Essential Utility Power			
3. Coordinate additional receptacles for scanners, metal detectors and access control systems with Government			
4. Doorway receptacles shall be located at ceiling height and shall be on Essential Tech Power			
5. Entry Doors include Roof exits. All exterior receptacles shall be GFI			

**6.3.9 Systems Furniture Power Requirements (GFGI):**

(a) Spine Wall panels must be able to provide electrical power distribution with a four circuit, 8-wire factory-installed power harness system at baseline.

- One separate Line-Neutral-Ground circuit (utility power)
- Three separately phased line circuits with common Neutral and Ground (tech power)

(b) The baseline power harness must be retrofittable in the field without dismantling the system. Snap-in duplex receptacles at the baseline must be field-interchangeable without a licensed electrician. The baseline panel must have the capacity for two duplex receptacles per panel side on all panels wider than 30 inches. The harness must be capable of drawing 80 Amps of power and have an oversized neutral for the three-phase circuit.

(c) Receptacles shall be color-coded or otherwise clearly identified to distinguish which of the four circuits they pertain to. Allocate the tech power phased outlets evenly within a workstation cluster.

(1) Utility power receptacles shall be of the same color tone as utility power wall receptacles and faceplates

(2) Tech power receptacles shall be easily distinguishable from utility outlets

(3) A maximum of six workstations shall be fed from one 4-circuit feed.

(4) Baseline wire management side covers must be hinged for easy access

(d) The power cabling management system must accommodate raised flooring access at any point along the spine wall or end-of-panel floor or hard-wall access. Connection from furniture electrical harness to building power shall be in liquid tight flexible metal conduit.

(1) Length of conduit shall be appropriate to placement of furniture entry point in respect to the junction box

(2) Exterior conduit shall be concealed

(3) Coordinate junction box placement with furniture placement to minimize exposure of conduit

(4) Cord and plug assemblies shall not be used for any portion of external links to building power

### **6.3.10 Special Lighting Requirements:**

(a) Office lighting systems shall be designed to control brightness and glare, particularly with respect to video display screens.

(b) Conference rooms shall have a "layered" lighting system, including incandescent lighting around perimeter of conference tables and wash lighting on walls.

(c) Lighting control and other energy management features shall be implemented IAW Air Force directives, local codes and ordinances. Occupancy sensors shall be required in CL level conference rooms, hard walled offices, normally unoccupied equipment rooms, TRs, and other "minimal use rooms, such as training rooms and janitor closets.

(d) Exterior lighting shall minimize sky glow and light trespass on adjacent properties, and shall be photocell controlled and integrated with the facility's overall security requirements. In the perimeter areas of the buildings, photo sensor controls shall be utilized where appropriate to reduce the electric lighting in proportion to the available daylight.

### **6.3.11 Energy Management:**

(a) Facility design shall incorporate energy efficient criteria consistent with the ENERGY STAR program and other Federal Energy Management Program (FEMP) initiatives.

(b) The facility design shall encourage sustainable design and shall provide for verification of building performance.

(c) Energy for lighting and other uses shall comply with ASHRAE/IES 90.1-1999.

(d) Microprocessor-based metering units shall be provided on main utility services and at the consolidated club facility to monitor the quantity and quality of energy used.

### **6.3.12 Electrical Submittals:**

- Electrical System One-line diagram
- Electrical Site Plan
- Generator pedestal and transformer design detail
- Circuit and receptacle layout diagrams
- Grounding System One-line diagram
- Grounding System Components detail
- Lighting systems layout diagrams
- Cut sheets on lights and electrical equipment
- Power Load tables
- Circuit Breaker Panel Schedules

### **6.3.13 Applicable Codes and Standards:**

(a) Material and equipment shall be installed in accordance with the current standards and recommendations of the National Electrical Code, the National Electrical Safety Code and with local codes that apply. Utility service and connection shall be done in strict conformance with the requirements of the utility companies.

(b) Electrical material and equipment shall be new and shall bear the label of the Underwriters' laboratories, Inc., or other nationally recognized independent testing laboratory wherever standards have been established and label service regularly applies.

(c) Electrical material and equipment shall conform to the latest approved standards of the National Electrical Manufacturers Association (NEMA), American National Standards Institute (ANSI), Institute of Electrical and Electronic Engineers (IEEE), and National Fire Protection Association (NFPA).

#### **6.3.14 Amenity and Comfort:**

Convenience:

(a) Provide an interface between the electrical monitoring and the building automation system including the following (the BAS may, in fact, provide a single source monitoring at the discretion of the Developer, considering economics, effectiveness, and system design requirements):

- (1) Motor Control Center:
- (2) Switchboard Monitoring:
- (3) Power Analysis Values:
  - Output voltage of each phase; line-to-line and line-to-neutral.
  - Output current; each phase and ground.
  - Real power; per phase.
  - Reactive power; per phase.
  - Apparent power; per phase.
  - Power factor; per phase.
  - Frequency.
- (4) Demand Readings:
  - Demand current; per phase and peak.
  - Average power factor; 3-phase total.
  - Demand real power; 3-phase total.
  - Demand apparent power; 3-phase total.
  - Demand reactive power; 3-phase total.
  - Coincident reading.
  - Predicted Demands.

#### **6.3.15 Electrical Hazards:**

(a) Design in accordance with all NFPA standards that apply to the occupancy, application, and design.

- Control access to spaces housing electrical components and allow access only by qualified personnel.
- Provide electrical distribution equipment with locking cabinets, doors, and panels when it is located in public areas.
- Hazardous Locations: Comply with code.

#### **6.3.16 Emergency Systems:**

- (a) Provide emergency power when normal power is interrupted.
  - As required by code and in mission critical spaces including Telephone Switch, Command Post, Consolidated Network Control Center, Base Network Control Center, Dial Central Office, telecommunications rooms, and for the SCIF alarms.

#### **6.3.17 Hazardous Locations:**

Comply with requirements of NFPA 70 chapter on Hazardous (Classified) Locations.

#### **6.3.18 Durability:**

- (a) Moisture Resistance: Water-resistant equipment includes transformers, raceways, enclosures, panelboards, and switchgear.
- (b) Enclosures: As required to protect equipment from environment in which it is installed, complying with NEMA 250 and:
  - Areas to be Hosed-Down, or Equivalent, Exterior or Interior: Type 4.
  - Exterior, Exposed to Weather and Wind: Type 3S.
  - Exterior, Other Locations: Type 3R.
  - Interior, Subject to Settling Dust/Falling Dirt/Dripping Liquids: Type 5.
  - Interior, Subject to Circulating Dust: NEMA Type 12.
  - Interior, Other Locations: Type 1.

#### **6.3.19 Power Consumption and Efficiency:**

- (a) Comply with requirements of IEEE Standard 739.
- (b) Comply with requirements of ASHRAE 90.1 and Title 24.
- (c) Metering: Provide meters to measure power consumption of lights, receptacles, HVAC systems, water heaters, elevators, and loads greater than 20 kW per section 8.3.14. Metering to be provided at switchboard and MCC level.

### **6.3.20 Load Characteristics:**

- (a) Provided by GFGI UPS System.
  - (1) Maximum Harmonic Current Distortion: Plus or minus 2 percent of design current.
  - (2) Transient Suppression: Limit voltage transients below damage curve of the electrical system and connected equipment.

### **6.3.21 Protection Against Disturbances:**

- (a) Provided by GFGI UPS System.
- (b) Provide circuits which serve sensitive electronic equipment with electrical characteristics within the ranges defined in IEEE Standard 1100 and as follows:
  - (1) Transient Limit: 200 volts.
  - (2) Swells and Sags: Voltage fluctuation limit of plus or minus 5 percent.
  - (3) Overvoltage and Undervoltage: Voltage fluctuation limit of plus or minus 5 percent.
  - (4) Conducted RFI/EMI Limit: 0.3 volts.
  - (5) Radiated RFI/EMI Limit:
    - Less than 200 kHz: 10 kV per m.
    - Greater than 200 kHz: 0.5 kV per m.
  - (6) Voltage Distortion Limit: 3 percent.
  - (7) Phase Imbalance Limit: 1 percent.
- (c) Substantiation:
  - (1) Schematic Design: Identification of design strategies to minimize electrical disturbances.
  - (2) Design Documents: Identification of circuits that require power conditioning equipment.
  - (3) Construction: Functional performance testing.

(4) Occupancy:

- If equipment is damaged or malfunctions within one year after completion, reporting of the cause of equipment damage or malfunctions.
- Corrective Action: Provide corrective measures necessary to eliminate electrical disturbances that caused equipment damage and malfunctions.
- Retest Report: Identification of electrical characteristics after corrective equipment has been installed and all equipment is operating properly and without damage.

(d) Noise Protection: Limit frequency excursions between 90 to 110 percent of design frequency.

(1) Protect the circuits as indicated on the drawings. Pay specific attention to the following areas:

- Receptacles serving personal computer terminals.
- Receptacles serving network servers.
- Power supply to fire alarm panel.
- Power supply to telephone system.

(e) Substantiation:

- Schematic Design: Identification of circuits that require noise protection.
- Design Development: Description of noise protection devices to be used.
- Construction: Measurement of frequency excursions on protected circuits.

(f) Surge Protection: Voltage excursion limit of 2 times design voltage.

(g) The following areas require specific attention:

- Receptacles serving personal computer terminals.
- Receptacles serving network servers.
- Power supply to fire alarm panel.
- Power supply to telephone system.
- Power supply to laboratories.
- Entire building service.
- Motors over 5 horsepower.

(h) Substantiation:

- Schematic Design: Identification of circuits that require surge protection.
- Design Development: Description of surge protection devices to be used.
- Construction: Measurement of voltage excursions on protected circuits.

**6.3.22 Availability:**

Provide an electrical system that is available to transmit power at least 99 percent of the time.

**6.3.23 Reliability Indexes:**

(a) System Interruption Frequency: Calculated in accordance with IEEE 493.

(b) System Expected Interruption Duration: Calculated in accordance with IEEE 493.

(c) Service Interruption Definition: Voltage of zero for 1 minute or longer.

(d) Failure Modes and Effects Analysis: Determine the components or combination of components whose failure causes a service interruption.

(1) Substantiation:

- Design Development: Reliability evaluation calculated using the "minimal cut-set method" described by IEEE 493.

**6.3.24 Allowance for Change and Expansion:**

(a) Spare Capacity at Distribution Panels: 25%

(b) Spare space available for future circuit breakers: 25%

**6.3.25 Operating Expense:**

(a) Minimize operating expenses by providing peak-shaving capability, if cost effective. LAAFB to pay the additional expense for any energy saving equipment beyond the requirements of Title 24, if desired.

(1) Evaluation of Cost Effectiveness: Simple payback is less than 3 years.

(2) Provide a calculation of simple payback based upon utility rate structure, demand charges, capital expense, and energy management.

#### **6.3.26 Acceptance Testing and Verification (ATV):**

(a) Will be part of the Developer's Quality Assurance Program.

(b) Acceptance Tests costs will be the responsibility of the Developer.

(c) Successful testing, adjusting, and verification of the power systems will constitute an essential criterion for completion of the electrical work and acceptance of the systems involved by the Air Force.

(d) The Developer will perform the coordination study for the system, test the distribution gear, and set the ratings on the switchboards.

(1) The Developer will provide fully operational, synchronized, and tested emergency generator plants in each building serving departmental areas.

(2) The Developer will provide point by point light modeling of the project with the design development submittal demonstrating compliance with the requirements of IES and Title 24.

#### **6.3.27 Fire Alarm System:**

(a) The Developer will provide a fully operational, synchronized, and tested fire alarm system in each building serving departmental areas. The system will be centrally controlled from one location, but will be served by sub-control stations in each building as well. The entire site system will be tested inclusive of each building separately and each building interfaced collectively.

(b) The fire alarm system will be fully digital and fully addressable.

(c) The submittals for the fire alarm system will be due 60 and 90 days following the completion of design and award of the construction contract. The commissioning authority will be copied on the submittals.

(1) The 60 day submittal will contain cut sheets of all equipment to be supplied on the project, a complete input/output address matrix, sequences of operation of all equipment and systems served, and thorough description of performance during each programmed emergency operation.

(2) The 90 day submittal will contain a one line graph of the entire system architecture, an electronic copy of the system code, and the system graphics that will be displayed.

(d) The fire system will be centrally monitored and controlled, but each building will have a separate control station located in its lobby fully compliant with fireman control standards.

## **6.4 COMMUNICATIONS REQUIREMENTS:**

The communications requirements for the SAMS Project include Voice, Data and Video systems. These systems provide the SAMS users with connectivity to local and remote services such as the Internet, the Unclassified but Sensitive Internet Protocol Router Network (NIPRNet), Secret Internet Protocol Router Network (SIPRNet), the Joint Worldwide Intelligence Communications System (JWICS), various Video Teleconferencing Systems (VTC), Community Access Television (CATV), Direct Satellite System (DSS) television, and a number of contractor and subcontractor hosted systems and services.

### **6.4.1 General Requirements:**

(a) The SAMS Project communications requirements are similar to the requirements of a modern office facility with multiple tenants. Communications has the same high availability and reliability requirements described in the HVAC and Electrical systems sections. Unlike a commercial facility, SAMS has added security requirements, which if not addressed early in the design, could significantly impact project cost and schedule due to rework requirements to meet accreditation guidelines.

(b) The SAMS complex will be the heart and pulse of LAAFB. SAMS will host the Dial Central Office (DCO), which houses the base administrative telephone switch, which services all of LAAFB and Fort MacArthur. The DCO also provides access to all commercial and Department of Defense (DoD) telephone services. Additionally, the SAMS project will host the Consolidated Network Control Center (CNCC), which houses the majority of the base servers to include those supporting the Internet, NIPRNet and SIPRNet. The CNCC will also serve as the POP for Defense Information Systems Agency (US DoD) services. The CNCC will integrate LAAFB into the One Air Force, One Network concept.

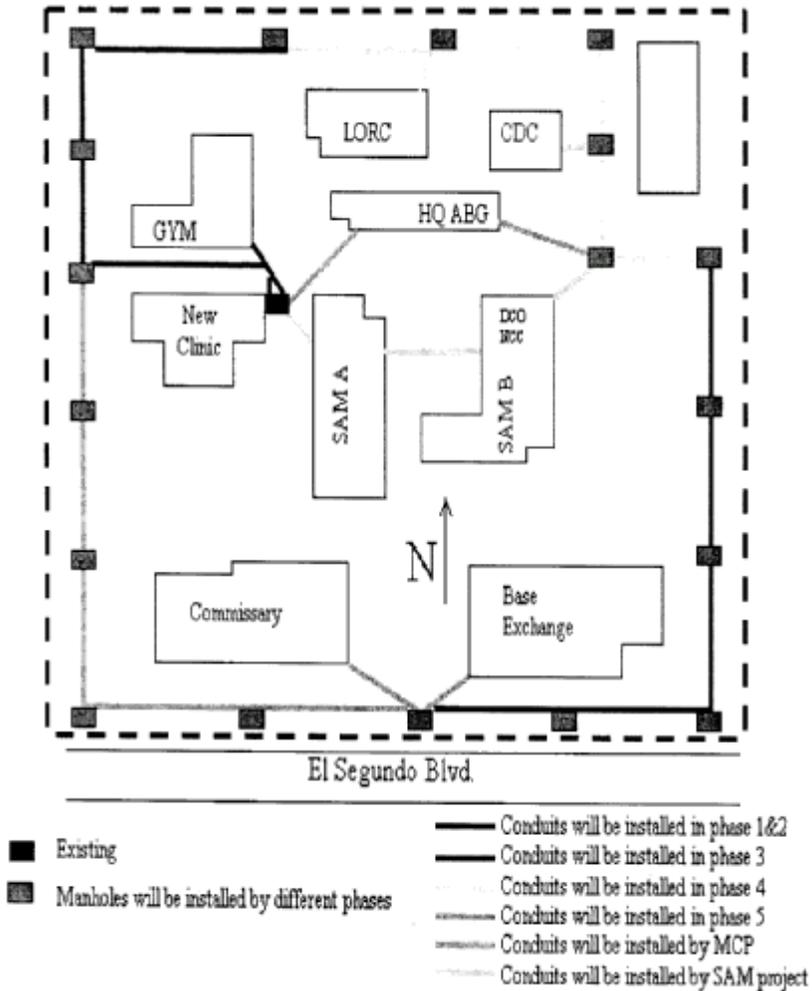
(c) The Air Force will consider all value engineering proposals that streamline and improve the inside wiring architecture, such as omitting some or all of the Category 5E cable and going to fiber optic cable. However, Air Force telecommunications, LAN network and computers are not fiber optic compatible. Therefore, a fiber optic proposal must also include the costs to make existing equipment fiber optic compatible.

### **6.4.2 Outside Plant Requirements:**

(a) The OSP requirements for LAAFB shall be design build to mesh with existing and proposed base improvement initiatives. Currently, LAAFB CE has a plan to design and construct an Area B duct bank system to support all communications requirements. This plan includes construction of a base loop that will interconnect the Commissary, Base Exchange, Fitness Center, and Clinic with commercial services to the west and south east and contractor services to the south east. The loop will border the proposed SAMS site location. The extent of common duct bank and access to SAMS will depend on the final site selection and

campus configuration. LAAFB to provide all cabling to the Switch. The following figure provides the conceptual OSP layout for SAMS Area B.

**Figure 6.1 Conceptual Cable Layout for Area B**



(b) Duct Bank

(1) The Developer shall provide duct bank connection between each SAMS building and the Area B loop. Developer shall construct OSP duct bank for each SAMS facility to tie into the loop in accordance with Figure 6.1. The connectivity is to support copper and fiber optic cable distribution. The following table is intended to provide a design guide for the Developer and all information will need to be validated during design.

**Table 6.15 Communications Duct Bank**

From	To	Trade Size (inches)	Quantity	Notes:
SAMS Building A	Area B Loop	4	6	1
SAMS Building B	Area B Loop	4	6	1
Child Development Center (CDC)	Area B Loop	2	3	
Auto Hobby Shop	Area B Loop	2	2	
SAMS Building A	SAMS Building B	4	6	1
Notes:				
1. The SAMS buildings A and B require redundant OSP connectivity.				

(c) Manholes provided by the Developer will be compatible in size, construction and configuration to those provided by LAAFB in the Area B loop. The manhole and conduit system will be installed in accordance with T.O. 31W3-10-12.

- OSP Cable Requirements

(d) The Air Force will provide and install the cabling required to connect the SAMS building telephone switch with the remainder of LAAFB, to include SAMS and non-SAMS facilities. The Developer is required to provide and install interior cabling within all of the SAMS buildings. In addition, the Developer is required to install the conduit between the SAMS facilities, cable connection points, and the outside cable plant manholes and conduit as shown in Figure 6.1. The OSP duct bank is required to support 6,000 cable pairs initially and is expandable to 10,000 pairs. At this time, the estimated cable required to interconnect all LAAFB facilities is provided in the following table.

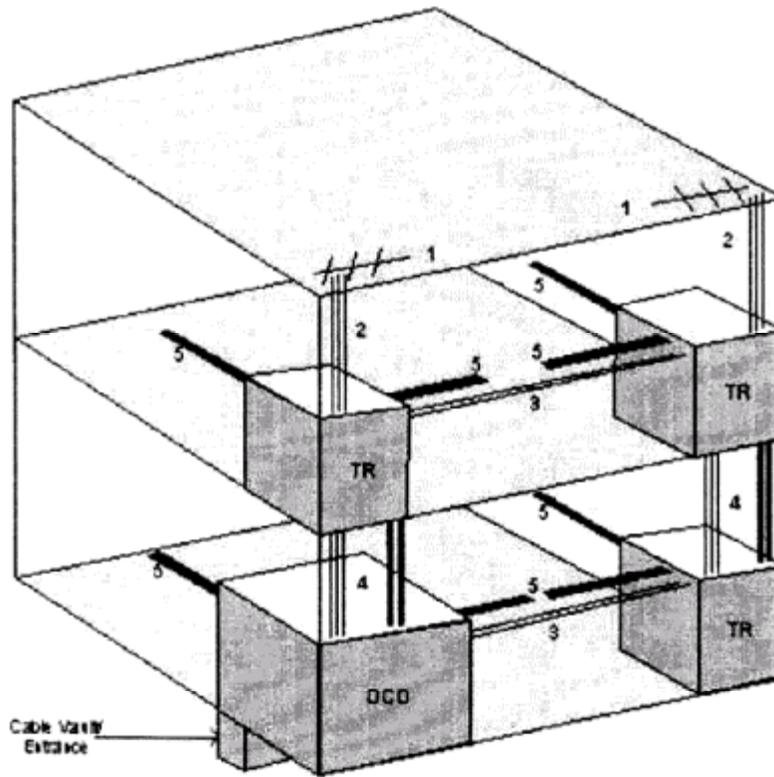
**Table 6.16 OSP Cable Requirements**

For sizing purposes only on non-SAMS Buildings

<b>Building</b>	<b>Copper pairs</b>	<b>Fiber Quantity</b>	<b>Notes</b>
Main SAMS Bldg	Note 1	Note 1	
Satellite SAMS Bldgs.	2 pairs per occupant	24/48 Hybrid	2
SAMS Parking (only if multi-level structure is used)	50	6/12 Hybrid	2
Commissary	100	6/12 Hybrid	2
Base Exchange	100	6/12 Hybrid	2
CBC (ABG Phase I)	2000	24/48 Hybrid	2
Fitness Center	100	6/12 Hybrid	2
Clinic	400	6/12 Hybrid	2
Aerospace	600	72SM/72MM	2
CE/LG Warehouse (ABG Phase II)	200	6/12 Hybrid	2
<b>Note:</b>			
1. Quantity of cables/pairs will equal sum of all other buildings on the campus.			
2. All fiber shall be home runned to the building housing the main telecommunications switch.			
<b>General:</b>			
1. OSP shall meet the requirements of TIA/EIA-758.			
2. Fiber quantities are estimates.			

**6.4.3 Inside Plant Requirements:**

The Inside Plant cable requirement for SAMS is generally broken down into horizontal and riser cabling. The horizontal cables extend from the work area outlets to the Telecommunications Rooms (TR). Backbone cables interconnect TR with equipment rooms such as the CNCC and MDF. The following figure illustrates how the backbone and horizontal cables will be distributed and supported.



1. Antenna Grid with power and ground.
2. Conduits with service head from top-floor TRs to roof.
3. 2, 3-inch conduits interconnecting TRs on same floor.
4. Slots and sleeves interconnecting vertically-aligned TRs and ERs.
5. Cable tray to horizontal and backbone cabling

#### 6.4.4 Horizontal Cable Requirements:

(a) The standard horizontal telecommunications cable for SAMS will be Category 5e (CAT 5e) plenum rated unshielded twisted pair (UTP). Each work area outlet shall be connected to the TR with three plenum cables, one for Voice, Data A and Data B. Each cable represents a different service and will be a unique color. These cables will terminate in dual-gang wall-mount or floor mount boxes at the work areas and on standard 19-inch rack mount patch panels in the TR. At the patch panel, reserve one future CAT 5e jack for Data C for each user outlet.

(b) In addition to the Horizontal CAT 5e cable requirement, up to 60 users require access to the Classified LAN. These fiber optic horizontal cables are transported through the building wide PDS system.

(c) All components are to be of one manufacturer and shall be performance tested against current specifications for the selected product. The following table provides the general horizontal cabling requirement.

**Table 6.17 Horizontal Cabling Requirements**

<b>From</b>	<b>To</b>	<b>Category 5e</b>	<b>Fiber Pairs</b>	<b>Notes:</b>
Each Unclassified Work Station Connects to	Nearest TR	X		1, 2, 3
Each OL-1, OL-2, and OL-3 Classified Work Station Connects to	Nearest CER		X	1, 4, 5, 6
Other Classified Work Station Connects to	Nearest CER		X	1, 4, 5, 6
SCIF Connectivity				
Each Unclassified Work Station Connects to	Nearest TR		X	1, 4, 6
Each Secret Work Station Connects to	Nearest TR		X	1, 4, 6
Each SCI Work Station Connects to	Local ER		X	1, 4, 6
Each Voice Outlet in the SCIF	Nearest TR	X		1, 2, 7
Notes:				
1. Plenum rated cables required for all horizontal cabling. Splices are not permitted.				
2. All pairs of the cables shall be terminated to CAT 5E patch panels within the TR.				
3. Each of the 4 cables (voice, Data A, B, and C.) shall be a different colored sheath				
4. Fiber cables shall be 62.5 Micron MM, OFNP rated cables. Splices are not permitted.				
5. Provide end to-end PDS with lockable enclosures.				
6. Each Fiber Pair is home run under separate sheath and terminates in a FDP.				
7. Voice outlets within the SCIF require separate Faceplates and conveyance.				

**6.4.5 Telecommunications Outlet Requirements:**

(a) A typical Unclassified telecommunications outlet (TO) shall support up to 4 Category 5 jacks of which three jacks will be installed initially.

- 1 Voice Jack
- 3 Data Jacks (two installed initially)

(b) A typical telecommunications outlet for an office outside of the SCIF requiring Secret LAN access shall include the 4 jacks specified for an unclassified outlet, plus one duplex fiber optic jack.

(c) A typical SCIF telecommunications outlet shall support 6 strands of fiber optic cable and one Category 5e cable. Each duplex fiber connector shall be unique, either of different types (SC, ST, etc) or the same type of connector with keyed plug and socket assemblies.

(d) The following tables provide the minimum requirements for Telecommunications Outlets by functional areas.

**Table 6.18 Office Space TO Requirements**

<b>Building</b>	<b>Copper pairs</b>	<b>Fiber Quantity</b>	<b>Notes</b>
Main SAMS Bldg	Note 1	Note 1	
Satellite SAMS Bldgs.	2 pairs per occupant	24/48 Hybrid	2
SAMS Parking (only if multi-level structure is used)	50	6/12 Hybrid	2
Commissary	100	6/12 Hybrid	2
Base Exchange	100	6/12 Hybrid	2
CBC (ABG Phase I)	2000	24/48 Hybrid	2
Fitness Center	100	6/12 Hybrid	2
Clinic	400	6/12 Hybrid	2
Aerospace	600	72SM/72MM	2
CE/LG Warehouse (ABG Phase II)	200	6/12 Hybrid	2
<b>Note:</b>			
1. Quantity of cables/pairs will equal sum of all other buildings on the campus.			
2. All fiber shall be home runned to the building housing the main telecommunications switch.			
<b>General:</b>			
1. OSP shall meet the requirements of TIA/EIA-758.			
2. Fiber quantities are estimates.			

**Table 6.19 Conference Space TO Requirements**

<b>Conference Spaces:</b>	<b>Quantity of TOs</b>	<b>Cable TV</b>	<b>SECRET LAN</b>	<b>Internal LAN</b>	<b>Front Projection</b>	<b>Rear Projection</b>	<b>Sound Prewire</b>	<b>Notes:</b>
CL-1	2 (Under Conf. Table)	Yes			Yes	Yes	Yes	1,3
CL-2	2 (Under Conf. Table)	Yes			Yes	Yes	Yes	1,3
CL-3	2 (Under Conf. Table)	Yes			Yes	Yes	Yes	1,3
CL-4	2 (Under Conf. Table)	Yes			Yes		Yes	3
CL-5	2 (Under Conf. Table)	Yes			Yes		Yes	3
SCL-6	1	Yes			Yes			3
SCL-7	1	Yes			Yes			3
Conference Center	2 (Under Conf. Table)	Yes			Yes		Yes	4
Presentation Room (RPC)		Yes				Yes	Yes	4
Court Room		Yes			Yes		Yes	2,4
<b>Notes:</b>								
1. Front OR Rear Projection and control rooms are to be coordinated with Government.								
2. Build IAW AF design guide for Court Rooms.								
3. Additionally, co-locate 1 TO with each perimeter ADP Power Outlet.								
4. Co-locate 1 TO with each ADP power outlet.								
Conference Rooms in the SCIF shall accommodate Secret and SCI LAN connections								

**Table 6.20 Training Space TO Requirements**

<b>Training Space:</b>	<b>Quantity of TOs</b>	<b>Front Projection</b>	<b>Cable TV</b>	<b>Notes:</b>
CZ Training Room	1 Per Student	Yes	Yes (2)	1,2,3
CL Training Room	1 Per Student	Yes	Yes (2)	1,2,3
AX Training Room	1 Per Student	Yes	Yes (2)	1,2,3
DSMA Training Rooms	1 Per Student	Yes (2)	Yes (6)	1,2,3
DSMA Training Rooms	1 Per Student	Yes	Yes (2)	1,2,3
FM Training Room	1 Per Student	Yes (2)	Yes (4)	1,2,3
MT Training Room	1 Per Student	Yes	Yes (4)	1,2,3
PK Training Room	1 Per Student	Yes	Yes (2)	1,2,3
XPM Training Room	1 Per Student	Yes (2)	Yes (4)	1,2,3
61 CS Training Room	1 Per Student	Yes (2)	Yes (4)	1,2,3
61 CS Training Room	1 Per Student	Yes	Yes (2)	1,2,3
<b>Notes:</b>				
1. Co-Locate additional TOs with each ADP power perimeter outlet.				
2. Student areas based on 80 S.F. Per Student.				
3. Coordinate TV drops with Television power receptacles.				

**Table 6.21 Specialty Space TO Requirements**

<b>Specialty Space:</b>	<b>Quantity of Tos</b>	<b>Cable TV</b>	<b>Unclass LAN</b>	<b>SECRET LAN</b>	<b>SCI LAN</b>	<b>Notes:</b>
Classified Work Area	1 per WA			1 per TO		3
MT SERF	1 per WA			1 per TO		3
Command Post	1 Per WA			1 per TO		3
BNCC	2			1 per TO		3
SCIF	1 Per WA	Note 1	1 per TO	1 per TO	1 per TO	2,3
SCIF Equipment Room						3
<b>IN</b>						
Reservist Lab	1 per WA		1 per TO	1 per TO	1 per TO	3
Research Center	1 per WA		1 per TO	1 per TO	1 per TO	3
SERF	1 per WA		1 per TO	1 per TO	1 per TO	3
IN/PWW Equipment Room						
Library (1 Large Room)			1 per TO	1 per TO	1 per TO	3
PWW Server Room						
IN Server Room						
<b>XR</b>						
Equipment Room						
TS Computer Room						
Secret Computer Room						
Blue Room	1 per WA		1 per TO	1 per TO	1 per TO	3
<b>Notes:</b>						
WA = work area						
1. Provide one isolated CATV drop per SCIF						
2. Standard SCIF TOs include unique Fiber Optic connector for the Unclassified LAN, SECRET LAN and the internal SCI LAN						
3. For reference only. Refer to Table 8-11 for TO outlet count						

**Table 6.22 Miscellaneous Spaces TO Requirements**

Miscellaneous Space	Quantities of TOs	Cable TV	Secret LAN	SCI LAN	Internal LAN	Front Projection	Rear Projection	Sound Prewire	Notes:
61 CS/SCSV									
Photo Lab									
Development Room	1								
Studio									
Digital Development	4								
Office	8		Yes						
Storage									
Video Lab									
Editing Suites (4)	1	Yes							
Tape Library									
Dubbing Room	1								
Viewing Room									
Office Area	8		Yes						
Art Services									
Production Room		Yes							
Work Room									
Office/Work Area	6		Yes						
Processing Room		Yes							
Storage									
Presentations									
VTC (3)	3	Yes	Yes					Yes	1
Board Room	1	Yes					Yes	Yes	
Office Area	7		Yes						
Storage									
Conference Room	3	Yes					Yes	Yes	
Business Center	8		Yes						
Consolidated Club	15	Yes							2,3,4,5
<b>Notes:</b>									
1. 1 drop per each of 3 VTC Areas.									
2. Provide pay phone bank.									
3. Provide 2 TOs per office area.									
4. Provide Tos for cash register, bar, hallway phone, ATM, and kitchen									
5. Provide Tos per reception area									
6. For reference only. Refer to Table 8.12 for TO outlet count									

**Table 6.23 Communications Space TO Requirements**

<b>Communications Space</b>	<b>Quantity of TOs</b>	<b>Cable TV</b>	<b>SECRET LAN</b>	<b>SCI LAN</b>	<b>Notes:</b>
Cable Vault (Entrance Facility)	1				1
Main Distribution Frame (MDF)	1				1
Main Point of Presence (MPOP)	1				
Telecomm Room (TR)	1				1
Dial Central Office (DCO)	1				1
DCO Battery Room	1				1
Switchboard Operator Room	1 per Operator				
Consolidated NCC (ER)	1				1
CLASSIFIED NCC (CER)	1				1
<b>Notes:</b>					
1. 1 Voice outlet with wall mounted telephone for each facility					
2. For reference only. Refer to Table 8.13 for TO outlet count					

**Table 6.24 Facility Spaces TO Requirements**

Facility Space	Quantity of TOs	Notes:
Computer Storage Room	1	
File Storage Room	1	
Janitor Closet		
Electrical Room	1	
Mechanical Room	1	
Hallway	1	1
Restroom		
Lobby	1	1
Each Personnel Entrance and Delivery Door	1	2
Outside each SCIF door	1	3
<b>Notes:</b> 1. Voice outlet only. 2. Wall mounted telephone in a waterproof, wallmounted enclosure outside. 3. Provide wall mount. 4. For reference only. Refer to Table 8.14 for TO outlet count		

**6.4.6 Horizontal Pathway Requirements:**

(a) The use of pathways below raised floor is an acceptable design. The preferred cable pathway for the SAMS project is cable trays and other conveyances installed below the raised floor. Basket type cable tray shall be used for all primary cable pathways, stanchion mounted cable support loops shall be used for runs of 24 cables or less.

(b) The conveyance system shall seamlessly connect all work areas and spaces to patch panels, cross-connects and racks. The conveyance systems will be a blend of cable trays, ladders, conduits and J-hooks. Special consideration is required in identifying firewalls and providing the necessary fire-stop in and or around all conveyances transitioning a firewall. A cable pathway and conveyance guide is included in the following table.

**Table 6.25 Horizontal Pathway Requirements**

<b>From</b>	<b>To</b>	<b>Cable Tray</b>	<b>Conduit</b>	<b>J-Hook / Sling</b>	<b>Notes</b>
TR	Work Area (WA)	X	AR	AR	1, 2, 3
Cable Tray	Outlet Stub-out		AR	X	2, 3
Outlet Stub-out	dual-gang outlet		X		4
Cable Tray	Systems Furniture		X		4
<b>Notes:</b>					
1. Provide cable tray as the primary conveyance. Tray is sized at 50% maximum fill calculated with four CAT 5 and one fiber optic cables per WA plus all cables required to support conference rooms, training rooms, specialty areas, and other unique comm					
2. Provide conduit support as required (AR) for dedicated runs and transitioning firewalls.					
3. Provide cable support for all cables not in tray or conduit at 5 ft. (maximum) intervals..					
4. Size conduit for four cables per WA.					
<b>General:</b>					
1. Pathways shall meet the requirements of TIA/EIA 569-A					
2. Support other than cable tray is acceptable in areas that receive less than 40 CAT 5 Cables.					
3. All pathway material shall be plenum rated.					
4. Use of poke-throughs is prohibited					

**6.4.7 Backbone Cable Requirements:**

(a) Backbone cable requirements are specified by type of service. Backbone cabling is required to support voice, video, data and unique telecommunications requirements.

(b) The standard voice backbone or riser cable for SAMS will be 300 pair Category 3 (CAT 3) plenum or riser rated unshielded twisted pair (UTP) as required by code. These cables shall extend from the MDF/BDF to each TR. The copper backbone cable will terminate in standard 19-inch rack mount patch panels in the TR. These patch panels will be compatible with the horizontal cable patch panels and of the same manufacturer. In the MDF, the backbone cables will terminate in standard 110 Insulation Displacement Connector Blocks that will be installed adjacent to the DCO wall field for easy cross-connection.

(c) The standard data backbone or riser cables for SAMS will be two hybrid fiber optic cables. One cable will contain 6 Single Mode (SM) and 12 Multi Mode (MM) fiber strands and the second cable will contain 12SM and 24MM strands. Both cables will be plenum rated. Two cables are required to support mission and contractor unique requirements.

(d) These cables shall extend from the DCO to each TR. The fiber optic backbone cables will terminate in standard 19-inch rack mount fiber distribution and patch panels in the CNCC and TR.

(e) In addition to the above, backbone cables are provided to interconnect the SCIF, SERF and Classified equipment and workrooms. The following table summarizes the backbone cables.

**Table 6.26 Backbone Cable Requirements**

From	To	Fiber Riser		Copper Riser	
		Qty	Size (Strands)	Size (Pairs)	Notes:
DCO	TR	1	6/12		
	TR	1	12/24		
	SCIF	2	6/12		1
	CP	1	6/12		
	Classified ER	2	6/12		1
Classified ER	SERF	1	6/12		
	Classified WA	1	6/12		
	SCIF	1	6/12		
Entrance Facility	DCO	2	48/48		
Entrance Facility	SCIF	2	12/24		
Entrance Facility	Classified ER	2	12/24		
MDF	TR			600	2
MPOP					3
Notes:					
1. One cable for circuits and one for data					
2. Number of pairs equals 150 users per 10 kft x two phone outlets					
3. MPOP: All backbone cabling from MPOP will be GFGI					

**6.4.8 Backbone Pathway Requirements:**

(a) The use of pathways in the plenum is an acceptable design. The preferred cable pathway for backbone cables is dedicated conveyance systems.

(b) (b) The conveyance system shall seamlessly connect all work areas and spaces to patch panels, cross-connects and racks. The conveyance systems will be a blend of cable trays, ladders, conduits, slots, sleeves and J-hooks. In general, copper backbone cables transition between floors in sleeves. Within an area, the cables can be conveyed in the same manner as horizontal cables. Fiber optic cables and coax cables transition between floors in slots. Both slots and sleeves are connected vertically with cable ladder. Special consideration is required in identifying firewalls and providing the necessary fire-stop in and or around all

conveyances transitioning firewalls and floors. A cable pathway and conveyance guide is included in the following table.

**Table 6.27 Backbone Pathway Requirements**

From		TRAY	CONDUIT		SLOTS		SLEEVES		Notes:
		Size	Trade Size	Quantity	Size	Quantity	Trade Size	Quantity	
DCO (ER)	TR	Note 1							
DCO (ER)	TR				Note 2	Note 2	4	Note 2	
DCO (ER)	TIF	12 in.							
MPOP/DCO			3	2					
MPOP/CNCC			3	3					
TR	TR		3	2					3
TR	TR				Note 4	Note 4	4	Note 4	
TR (top floor)	Roof		2	3					6,7
Notes:									
1. For spaces on the same flr, size cable tray by usable flr space, 3 cables per Work Area, 50% fill.									
2. For vertically aligned spaces, size Slots and Sleeves by usable floor space.									
3. Interconnect all TRs on the same floor with two trade size 3 conduits.									
4. For vertically aligned spaces, size Slots and Sleeves by usable floor space.									
5. Size horizontal distribution tray by usable floor space served. 3 cables per Work Area, 50% Fill.									
6. Install an antenna mounting grid, power, and ground to each area on roof receiving conduit									
7. Install waterproof service entrance head on each conduit.									
General:									
1. Pathways shall meet the requirements of TIA/EIA 569-A.									

**6.4.9 Ancillary Equipment:**

(a) The Developer will provide all racks, wall boards, patch panels, fiber optic distribution panels, horizontal and vertical cable management required to terminate and support all cables specified in Sections 8.4.2, 8.4.4, and 8.4.7. The following table estimates the type and quantity of items to be provided by Developer.

**Table 6.28 Provided Equipment**

	Wallboards	O/H Cable Ladder	Racks	Notes:
<b>Communications Space</b>				
Cable Vault (Entrance Facility)		Yes	AR	1
Main Distribution Frame (MDF)	Yes	Yes	AR	2
Telecomm Room (TR)	Yes	Yes	5	3
Main Point of Presence (MPOP)		Yes		5
Dial Central Office (DCO)		Yes		
DCO Battery Room			4	
Switchboard Operator Room				
Consolidated NCC (CNCC)	Yes	Yes	12	4
CLASSIFIED Equip. Rm (CER)	Yes	Yes	12	4
Satellite CER	Yes	Yes	5	4
<b>Notes:</b>				
1. Size as required. Calculate based on 2 copper pairs per occupant.				
2. Size as required.				
3. 5 racks per TR; 2 for data, 2 for horizontal terminations, and 1 for riser Terminations.				
4. The minimum number of racks required to support transition.				
5. MPOP equipment is supplied and installed by others				

(b) Racks shall be supplied in accordance with the following requirements:

- (1) All racks shall meet the requirements of ANSI/TIA 310-D
- (2) A full-length copper bus bar shall be installed within each equipment rack.

- (3) Each equipment rack shall have a power controller
- (4) Each equipment rack shall have a power strip which plugs into the power controller
- (c) Racks in non-raised floor areas shall not have side panels.
- (d) Racks in raised floor areas shall have a rear door, side panels, vented tops, and access to the under-floor area.
- (e) Wall boards shall be constructed in accordance with the following requirements:
  - (1) Wall boards shall cover two adjacent walls from floor to ceiling
  - (2) Material shall be a minimum of 3/4-inch, void free, AC grade plywood
  - (3) Wall boards shall be securely attached to the framing members in order to support any equipment mounted on it
  - (4) Wall boards shall be painted on all sides using two coats of white, fire retardant paint

**6.4.10 Protected Distribution System:**

- (a) The Developer is required to design and build a building wide Protected Distribution System (PDS) for conveying cables carrying Classified data in uncontrolled areas. Design and build the PDS per Air Force Systems Security Instruction AFSSI 3030.
- (b) The PDS shall interconnect the SCIF and classified work areas with the classified equipment rooms. Additionally, the Government requires PDS connectivity to approximately 60 users located in office areas outside of the SCIF and Classified rooms. These 60 users include all OL1 through OL3 offices. The remainder of the locations will be determined during the design phase. The following table summarizes the SAMS PDS requirements.

**Table 6.29 PDS Requirements**

<b>From</b>	<b>To</b>	<b>Trade Size</b>	<b>Quantity</b>	<b>Notes:</b>
Classified CNCC (CER)	TR	2	1	
Classified CNCC (CER)	SERF	2	2	
Classified CNCC (CER)	SCIF	2	2	
Classified CNCC (CER)	CNCC	4	2	
Classified CNCC (CER)	Common Classified Work Area	2	2	
Classified CNCC (CER)	Command Post	2	2	
Satellite CER	Satellite Classified Work Area	2	2	
Satellite CER	TR	2	1	
TR	SIPRNet User Outside the SCIF	1	1	1
<b>Notes:</b>				
1. A Total of approximately 60 users will be identified at a later date.				
<b>General:</b> If outside a SCIF, PDS Terminates to a Lockable Enclosure.				

**6.4.11 Cable Management:**

All racks, wall boards, wall fields, patch panels, fiber optic distribution panels, cable conveyances, horizontal and backbone cables, and telecommunications outlets and spaces will be identified and labeled in a manner approved by the government. In the work area, the telecommunications outlet will be labeled identifying each cable by color and type of service.

**6.4.12 Telephone System:**

(a) The Developer is required to accommodate a new telephone switch that will be provided and installed by the Air Force. The Developer will design the DCO space to accommodate the switch, battery backup, administrative terminals and wall fields. The Developer will install the termination fields for the backbone cables within the MDF, Air Force's PBX supplier will install PBX station termination fields and perform cross connects. Communications infrastructure must accommodate 10,000 lines for the telephone switch.

(b) The telephone system provided by the Air Force includes the switch, wall fields for trunks and ports, programming terminal, battery backup and documentation. The telephone system shall be capable of operating for eight hours from battery power. The battery backup system shall include rectifiers and ventilation control as part of the requirements. The battery room shall be equipped with an eye wash system.

#### **6.4.13 Other Communications Requirements:**

(a) Building PA (Raceway, wire, and outlets by Developer)

(1) The Developer is required to design the facility to support a GFGI building PA System. The PA system requires power at the base station and conveyance system connectivity to all building areas. The Government will identify a location in the Command Post for the base station during the design phase.

(b) Campus PA (Raceway, wire, and outlets by Developer)

(1) The Developer is required to design the facility to support a GFGI Campus PA System. The PA system requires power at the base station and conveyance system connectivity to SAMS building areas throughout Area B. The Government will collocate the base station with the building PA system.

(c) White Noise Generator in SCIF space (BFBI)

(1) The Developer is required to construct a White Noise Generator in the SCIF. The system requires power at the base station, ceiling speakers and conveyance system for connectivity. The Developer will locate the base station within each SCIF.

(d) CATV Distribution (Equipment is GFGI, Raceway, cables, and outlets by Developer)

(1) The Developer is required to design and install a CATV distribution system. The CATV head end will be located in the CNCC and feed all SAMS buildings. Feeders will extend from the equipment room to every Telecommunications Room. From the TR, CATV will extend into a wall outlet in every OL-1 through 3 offices, all Conference Rooms, the Conference Center, the Presentation Room, all Training Rooms, the Court Room, the Club and the Child Development Center. The CATV system requires connectivity to the OSP and to the roof antenna grid for connectivity to a GFGI DSS.

(e) Video Conferencing (Equipment is GFGI, raceways, cables, and outlets junction boxes by Developer)

(1) The Developer is required to design and install a VTC distribution system. The VTC will provide connectivity between the various VTC control rooms and all Conference Rooms, the Conference Center, the Presentation Room, all Training Rooms, and the Court Room. The VTC system requires tri-BRI connectivity to each location. The Conference Center and the Presentation Room require two feeds.

(f) Land Mobile Radio Repeater System (GFGI)

(1) Install a repeater system for the Land Mobile Radio (LMR) system to eliminate the "dead spots" on Area B and within each SAMS building. The

preliminary design will occur in the phase following the Core and Shell Design. A detailed frequency analysis of Area B by the Government may be required to support the design.

(g) Security System Requirements (Equipment is GFGL, raceways, cables, and outlets by Developer)

(1) The SAMS facilities have a requirement for a state-of-the-art Security System. The Developer shall design and install a security system that provides the SAMS Classified work areas, equipment rooms, and telecommunications rooms with physical protection, intrusion detection and alarms. The system shall be compatible with the Security System installed in the new ABG building. As a minimum, the Security System shall provide the following:

(2) Provide state-of-the-art cipher locks for all computer rooms, equipment rooms and telecommunications rooms.

(3) Government to provide state-of-the-art XO7 or equivalent locks for each SCIF entrance.

(4) Provide direct motion detectors for intrusion detection in computer rooms, equipment rooms, and telecommunication rooms, the SCIF, the DCO and MDF. Ref. a. (AFI) Air Force Instruction 31-102, Physical Security, May 91. b. (DoD) Department of Defense 5200. 1-R Appendix G, Physical Security Standards, Jan 97 and Air Force Systems Security Instruction 3030, Protected Distribution Systems, 1 May 97.

(5) Provide BMS on all exterior doors, doors leading into all computer rooms, equipment rooms, telecommunications rooms, the SCIF, the SERF, the DCO and MDF, Command Post, BNCC, roof entrances, and all mechanical and electrical rooms.

(6) Provide Access Control Proximity card readers on all exterior personnel entry doors, doors leading into all computer rooms, equipment rooms, SCIF, SERF, DCO, MDF, BNCC and Command Post.

(7) Government to provide Closed Circuit Television (CCTV) at all building personnel entrances.

(8) Government to provide CCTV at all SCIF and Command Post personnel entrances.

(9) Government to provide CCTV in all elevators.

(10) Government to provide CCTV to monitor the perimeters of all SAMS facilities to include roofs.

(11) Government to provide CCTV monitoring of all major hallways, corridors and stairways.

(12) Government to provide low light CCTV capability with audio input and pan, tilt and zoom control.

(13) Provide Duress Alarms in the Command Post, at the Guard position, in each SCIF and in the OL-1 Office.

## 7. **ENVIRONMENTAL PRACTICES:**

LAAFB is committed to sustainable construction and maximizing the efficiency of operating costs and resources over time. Adhere to Executive Orders 13101, Greening of Government through Waste Prevention, Recycling, and Federal Acquisition, September 14, 1998; and 13123, Greening of the Government through Effective Energy management, June 3, 1999.

### 7.1 **HAZARDOUS MATERIALS AND WASTE MANAGEMENT PLANS**

- During the design/build phase the Developer shall submit for Government approval:
  - Plan for solid waste management and recycling of construction demolition debris
  - Plan for storm water pollution prevention management.
  - *Hazardous Waste Management Plan.* The Hazardous Waste Management Plan is required under the Resource, Conservation and Recovery Act (RCRA), California's Hazardous Waste Control Law and AFI 32-7042. Hazardous waste is regulated by the Environmental Protection Agency (EPA), Title 40 CFR, the State of California Environmental Protection Agency (CAL-EPA)-DTSC, Title 22 CCR and the local CUPA—El Segundo Fire Department. These regulations require tracking and record keeping from "cradle to grave" of hazardous waste, as well as specific procedures for labeling, storage, transportation, and disposal. The purpose of this plan is to establish policies, procedures, and personnel responsibilities to ensure LAAFB's compliance with these regulations.
  - *Emergency Response Plan (ERP):* The ERP is required by Title 40, Code of Federal Regulations and Title 22, California Code of Regulations, for generators of hazardous waste. The ERP is designed to minimize hazards to human health and the environment resulting from fires, explosions, unplanned sudden or non-sudden releases of hazardous materials/waste, or their constituents to land, air or sea. This applies to all base activities.
  - *Spill Prevention, Control and Countermeasures Plan:* 40 CFR, Part 112 outlines requirements for both prevention of and response to oil spills. The prevention aspect of the rule requires preparation and implementation of the Spill Prevention, Control, and Countermeasure (SPCC) Plan. The regulation established spill prevention procedures, methods, and equipment requirements for

non-transportation-related onshore and offshore facilities with aboveground oil storage (ASTs) capacity greater than 1,320 gallons (or greater than 660 gallons in a single container or buried underground oil storage capacity greater than 42,000 gallons). Regulated facilities are also limited to those that, because of their location, could reasonably be expected to discharge oil in harmful quantities into the navigable waters of the United States or adjoining shorelines

## 7.2 MITIGATION MEASURES AND MANAGEMENT ACTIONS

(a) All practical means to avoid or minimize environmental harm shall be adopted.

(b) Soils and Geology:

(1) A comprehensive geotechnical report shall be prepared for the SAMS buildings on Area B. Specific design recommendations presented in the reports shall be incorporated into the final design and construction. The comprehensive geotechnical report shall include, but not necessarily be limited to, the following geotechnical hazards: ground shaking, slope stability, and expansive/corrosive soils.

(2) On-site grading for SAMS buildings on Area B shall be performed in accordance with applicable codes so that erosion of graded areas will not occur. All areas of construction shall be fine-graded to drain in conformance with the Standard Urban Storm Water Mitigation Plan and will direct permissible runoff to the street or to the nearest available storm drain. No runoff within the property boundaries shall be allowed to flow uncontrolled over any existing slopes. All permanent slopes shall be planted in conformance with current grading codes.

- The geotechnical investigation shall use site-specific soil and groundwater data to specifically evaluate the potential for liquefaction at each site. If there is a medium to high potential, specific recommendations shall be included in the geotechnical report to minimize the potential for damage from liquefaction.
- The recommendations presented in the comprehensive geotechnical investigation report for design of walls below grade to support the lateral earth pressure and the additional surcharges from adjacent buildings and traffic shall be followed.
- The SAMS design shall include a site-specific methane gas study to characterize the levels of methane and other volatile gases that may be present and to evaluate the level of impact that hazardous gases might have on the project.

(c) Air Quality –

(1) The following mitigation measures will be implemented for construction activities to reduce emissions of Nitrogen Oxides (NO<sub>x</sub>), an ozone precursor:

- Diesel-powered construction equipment shall be shut off when not in direct use.
- Diesel engines, motors, or equipment shall be located as far away as possible from existing residential areas.
- All diesel-powered equipment shall be properly tuned and maintained.

(d) Noise –

- Comply with South Coast Air Quality Management District regulations
- All construction equipment shall be equipped with mufflers and other suitable noise attenuation devices.
- The Developer shall notify all residential units and other sensitive receptors located within 400 feet of the SAMS construction sites on Area B regarding the construction schedule of the proposed project. A sign, legible at a distance of 50 feet, shall also be posted at the construction site. All notices and the signs shall indicate the dates and duration of the construction activities, as well as provide a telephone number where residents can inquire about the construction process and register complaints.
- The Developer shall appoint a "noise disturbance coordinator" for the SAMS construction project. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad mufflers, etc.) and would be required to implement reasonable measures such that the complaint is resolved. All notices that are sent to residential units within 400 feet of the construction site and all signs posted at the construction site shall list the telephone number for the disturbance coordinator.

### 7.3 HEALTH AND SAFETY

(1) Use of explosives is not permitted.

(2) Construction operations will comply with NFPA 241, including applicable recommendations in Appendix A.

(3) Removal, abatement, handling, and disposal of hazardous materials will comply with 29 CFR 1926 and state and local regulations.

(4) Use physical barriers to prevent access to areas that could be hazardous to workers or the public.

(a) Substantiation:

- Design Development: The Air Force shall be responsible for identification of hazards in existing structures and on site, with preliminary plan for abatement.
- Construction Documents: The Air Force shall be responsible for detailed specifications for hazardous material removal, abatement, and disposal.
- Final Cleaning: By Developer of Developers Work.

## 8. **DESIGN AND CONSTRUCTION PROCEDURES**

Management and Coordination:

(a) Adjacent Buildings: Adjacent buildings will be occupied during the construction period.

(b) Coordination with Occupants:

(1) All disruption of services shall be arranged at least 48 hours in advance with the Air Force.

(c) Existing Utility, Life Safety, and Fire Safety System Elements:

(1) Prevent accidental disruptions to known & identified facilities within and outside the project limits by investigation of existing utilities and protection during construction; remedy accidental disruptions at no cost to Air Force.

(d) Changes In The Work:

(1) Progress Schedule: As specified in the Conditions of the Contract.

(2) Submit updated schedule whenever adjustments that change the Contract Times or Milestones are approved.

(e) Progress Documentation for Air Force Information:

(1) During Schematic Design, Design Development, and Construction Documents Periods: Graphic displays sufficiently detailed to allow individual departments to identify the status of the design of their new spaces.

(f) During Construction and Closeout: Photographs and graphic displays sufficiently detailed to allow individual departments to identify the status of the construction of their new spaces.

(g) Progress Documentation for Air Force's Project Record:

(1) During Construction: Daily digital photographic record of each major portion of the work, taken from consistent locations, distances, and angles.

(2) During Closeout: Monthly detailed digital photographic records of each interior room and space larger than 250 sf, each exterior elevation, the roof, and all site areas.

(h) Reference Documentation:

- Where any conflict or ambiguity seems apparent between the directions and/or definitions of the reference documents as described herein and Appendix A, view the directions and/or definitions of Appendix A as having precedence. Furthermore, for issues described as having to be "Considered" in one document and "Required" in another, the term "Required" shall have precedence.

## 8.1 DESIGN SUBMITTALS

(a) This section defines the Air Force's requirements for the development of construction drawing and specifications.

(b) Designs, specifications, drawings, notes, calculations and other works developed in the performance of this contract shall become the property of the Government.

(c) Attached hereto as Schedule "1" is a description of the interim design documents which will represent a 10 percent schematic documents.

(d) Throughout the design process the Developer must integrate communications into the facility. An information technology consultant with expertise in this area must be used during the design of the facility. As a minimum, the Developer is required to have all communications submittals approved by a BICSI Registered Communications Distribution Designer.

(e) The Air Force requires a charette with the Developer's architect at the 20 to 25 percent design stage. The goal of the charette is to open a dialog between the Air Force and the architect, provide meaningful input to the design, and minimize changes at the 35% design development stage. The architect will make a presentation and solicit comments from the Air Force in relation to facility siting, traffic flow, primary exterior architectural elements, and construction phasing.

(1) The design will proceed with the Developer submitting a 35% complete interim design package (Design Development Documents) for review and approval by the Air Force. Developer shall be permitted to produce phased packages of selective portions of the project for design review to facilitate the construction schedule for the project. The schedule for submitting 35% design (Design Development Documents) will be per this Appendix A. The Air Force will review the 35% design package against the requirements established in this Appendix A. The Air Force shall have 15 business days to review and approve the 35% complete package for substantial compliance with the requirements of this Appendix A. The Air Force shall either approve the 35% design package or specify in writing the particular changes which must be made to such documents for them to be reasonably acceptable to the Air Force. If the Air Force requests changes that are different or inconsistent with the 10% (Schematic Documents), change order procedures will be followed in accordance with subsection 8.5(c). Air Force failure to notify SAMS Venture LLC in writing within such 15 business day period of any changes shall constitute Air Force approval of the 35% Design Package.

(2) After approval of the 35% (Design Development Drawings) design by the Air Force, the Developer shall proceed with the design through the 65% design. After approval of the 35% design submission the Air Force will require monthly over the shoulder design reviews through the final design. In addition, using the charette format, the Air Force will require the review and approval of the floor plans and systems furniture layouts at approximately the 65% (50% of Construction Documents) design stage.

(f) After final approval and acceptance by the Air Force of the 65% design package, the design will proceed with the Developer submitting 90% complete Construction Documents for review and approval by the Air Force. The schedule for submitting 90% design (Construction Documents) will be per Exhibit C to this Appendix A. The Air Force will review the 90% design package against the requirements established in this Appendix A. The Air Force shall have 15 working days to review and approve the 90% complete package for substantial compliance with the requirements of this Appendix A. The Air Force shall either approve the 90% design package or specify in writing the particular changes which must be made to such documents for them to be reasonably acceptable to the Air Force. If the Air Force requests changes that are different or inconsistent with the 35% Documents, change order procedures will be followed in accordance with subsection 8.5(c). Air Force failure to notify Developer in writing within such 15 business day period of any changes shall constitute Air Force approval of the 90% Design Package for a specific portion of the Developers Work. Once the Air Force has reviewed and approved the 90% Design Package, the Air Force shall issue to Developer written work clearance authorization letters to proceed with such portion of the Developers work.

(g) The Developer will submit completed specifications and drawings. The specifications and drawings will be reviewed by the Air Force to ensure that they are complementary. In serving this function, they should meet the requirements outlined in Appendix A. As the graphic means of describing the construction project, the drawings should show the shapes, dimensions, locations, and the relationships between components and materials. The order of the drawings should facilitate the work of the Developer and follow the natural order of construction.

## 8.2 35% DESIGN REQUIREMENTS:

The following shall be elements of a 35% design:

### 8.2.1 General:

- (a) Establish the legend sheet (symbols)
- (b) Establish consistent terminology
- (c) Identify major interfaces (be sure you understand existing conditions)
- (d) Include the table of contents for specifications
- (e) Develop the list of particular specifications, highlighting nonstandard specifications and confirming that requirements identified in Appendix A are understood and can be met
- (f) Develop the drawing list
- (g) Include the preliminary list of section drawings
- (h) Identify changes from the 10% design
- (i) Identify proprietary technology or equipment, if known
- (j) Identify Air Force's equipment preferences
- (k) Include description of operation
- (l) Identify hazardous areas and their classification
- (m) Identify toxic areas and the regulatory agencies involved
- (n) Identify ventilation issues
- (o) Identify noise requirements
- (p) Identify the LAAFB permit and code requirements
- (q) Identify concept and strategy for telecommunications and LAN
- (r) Coordinate line work (interceptors, force mains, etc.) that is constructed outside the building site with the Air Force provided utilities (telephone, electric, gas, cable TV)

### 8.2.2 Civil Sanitary:

- (a) Soil report
- (b) High point and low point of floor slab
- (c) Discussion of pipe sizes for pipe hung from the underside of the structural frame or concrete supports
- (d) Location, weight, rotational speed(s), and equipment manufacturers' literature for all large equipment
- (e) Location and size of opening in concrete walls
- (f) Select major equipment
- (g) Prepare conceptual layouts for all buildings showing locations for major equipment
- (h) Develop the preliminary site plan with roadway (access) patterns, major subsurface piping, and utilities established
- (i) Develop operational and control descriptions of major systems
- (j) Develop the motor list
- (k) Identify scope of lab functions (if any)
- (l) Locate chemical storage, usage, and impacts

- (m) Define property limitations/site assessment/hazardous waste
- (n) Finalize Engineering Technical Design Report
- (o) Draft specifications for major equipment
- (p) Type of foundations
- (q) Identification of Americans with Disabilities Act (ADA) or other architectural restrictions
- (r) Type of framing (steel vs. concrete)
- (s) Agreement on method of equipment removal (e.g., use of cranes vs. individual lifting hooks)

### 8.2.3 Structural:

- (a) Locate and show all expansion joints on plans
- (b) Develop a legend sheet
- (c) Identify foundation requirements
- (d) Identify structural systems to be used
- (e) Show column coordinate system, letters, and numbers on plans

### 8.2.4 Architectural:

- (a) Final overall building size
- (b) Development of a preliminary floor plan and systems furniture layout
- (c) Final column spacing
- (d) Sizing for all major openings such as stairs, elevators, and roof skylights
- (e) Typical exterior of all sections
- (f) Interior partition materials
- (g) Anticipated floor depressions
- (h) Location and size of the knock-out panels
- (i) The roof slopes for pitched roofs
- (j) Final heights of all floors of building
- (k) Develop the preliminary legend sheet
- (l) Develop preliminary building code and ADA study
- (m) Develop the preliminary layout of new and modified buildings
- (n) Develop preliminary elevations
- (o) Develop preliminary building sections
- (p) Identify construction systems
- (q) Establish material selections
- (r) Coordinate structural system
- (s) Acquire Air Force Architectural Review approval
- (t) Outline specifications
- (u) Identify type of fire alarm system required and compatibility with existing system

### 8.2.5 HVAC:

- (a) HVAC drawings or specifications are not required at the 35% stage

- (type - gas, oil, electric)
- (b) Define equipment and system (heating and cooling) philosophy
  - (c) Identify major pieces of equipment locations and size
  - (d) Prepare preliminary calculations
  - (e) Identify roof type and its use
  - (f) Locate mechanical and HVAC room
  - (g) Provide the preliminary motor list

### 8.2.6 Plumbing:

- (a) Discuss with Civil Sanitary designer any special requirements
- (b) Discuss with Civil Sanitary designer Structural sump pit locations and sizes
- (c) The facility will include provisions for use of recycled or industrial water in the interior and exterior of the facility (purple pipe).

### 8.2.7 Electrical:

- (a) Identify distribution system and expected demands
- (b) Establish preliminary siting of major equipment and major duct banks
- (c) Establish standby-power requirements
- (d) Identify existing system demands
- (e) Identify extent of lightning protection required
- (f) Coordinate preliminary hazardous area designations (explosive/corrosive)
- (g) Provide equipment and panel schedules

### 8.2.8 Instrumentation and Controls:

- (a) Develop the specification section list
- (b) Establish control philosophy with Civil Sanitary and Electrical designers
- (c) Determine system block diagram/function location
- (d) Identify the interface with existing equipment/systems
- (e) Determine communication and life safety systems
- (f) Develop all P&ID's for major systems and equipment showing critical field instruments and identifying panels

- The Developer will submit completed specifications and drawings. The specifications and drawings will be reviewed by the Air Force to ensure that they are complementary. In serving this function, they should meet the requirements outlined in Appendix A. As the graphic means of describing the construction project, the drawings should show the shapes, dimensions, locations, and the relationships between components and materials. The order of the drawings should

facilitate the work of the Developer and follow the natural order of construction.

### **8.3 QUALITY REQUIREMENTS:**

(a) Design Criteria: During Schematic Design, the design and performance criteria must be refined, finalized, and documented.

(b) Record all design and performance criteria that will be of use during occupancy and operation of the project, including all items specified for maintenance manuals, below.

(1) Design Criteria Documentation Included in Construction Documents: Organized logically (from the point of view of operations staff) and placed in a prominent location in drawing sets.

(2) If desired, documentation may consist of annotated modifications to and amplification of the Conceptual Documents, with changes that affect Contract Times or Contract Price documented as required for modifications.

(3) If required, shop drawings may be used to accomplish design documentation.

(4) Air Force will maintain the project program document, modified to reflect changes made during refinement of the design.

(5) Drawings: Prepared using AutoCAD 2000 or later version, using Air Force specified drawing and layering conventions.

(6) Shop Drawings: Prepared using same CAD software with plot files.

(7) Mock-Ups: Where necessary to clarify design intent and obtain approvals, construct full-scale architectural mock-ups.

(8) Substantiation Requirements:

- Substantiation Submittal Procedures:
  - Time Frames: As specified. If there is a conflict between the degree of detail or completion specified and the progress of the design or construction, obtain a clarification before submitting.
  - Number of Copies: No more than 5 copies for Air Force's use and records; Air Force will return not more than one additional copy.
  - For time periods that constitute Milestones, all substantiation submittals required during that period

must be complete and accepted before the Milestone can be considered achieved.

- Submit complete sets of documents containing all substantiation at end of the following periods.

(c) Resubmissions: Clearly identified as such, with all changes made since the original submittal clearly marked.

(d) Air Force's Review of Substantiation: Unless otherwise indicated, Air Force will make formal acceptance of substantiation submittals.

(1) If a submittal is not acceptable Air Force will notify Developer within 10 working days.

(2) Allow 15 business days for review of major "end of period" submittals.

(3) As part of the project Quality Assurance program each submittal will undergo a Technical Review of the Design Documents as defined by GSA. The design team is required to respond to all comments made in each review and incorporate the ensuing resolutions in the subsequent design release.

(e) Substantiation Schedule: Prepare and maintain a complete schedule of substantiation items, showing:

- Contents, for each item:
  - Anticipated and actual item, with chapter and paragraph number and drawing identification, if any.
  - Anticipated submittal date, or time period(s) during which submittal is required.
  - Actual submittal date.
  - Action taken or other status.
  - Identification of future re-submission requirement, if any.
  - If desired, schedule may be incorporated into overall progress schedule, provided substantiation data can be reported separately from other progress information.
  - Submission: To Air Force, within 30 days after notice to proceed.
  - Form: Computer database format for Air Force's use in tracking submittals; database structured so Air Force's added information will not be overwritten or deleted by incorporation of updated data from Developer.
  - Updates: To Air Force, monthly in hard copy and same database format.

(f) Field Testing and Inspection: Perform all testing, observation, and inspection required by code and as specified.

(g) Exception: Tests and inspections indicated to be performed by Air Force's commissioning agent or other independent agency.

(h) Qualifications of Testing/Inspection Agencies:

(1) Qualified and equipped to perform applicable tests/inspection.

(2) Regularly engaged in testing and inspection activities on a commercial basis. Employed by Developer directly.

(i) Field Testing and Inspection: The Air Force with its own staff or 3rd party consultant shall conduct all building inspections similar to those that would normally be done by a building official.

(j) All inspections shall be scheduled within one business day of request by the Developer or his prime contractor and shall be conducted within two business days of request by the Developer or his prime contractor.

(k) Any required building permits, plan check fee, utility connection fees, or inspection fees shall be the responsibility of the Air Force.

(l) The Developer shall perform all standard material testing normally required by code.

(1) Authorized to operate in the State in which the project is located.

(2) Acceptable to Air Force.

(3) Substantiation: Submittal of qualifications, based on ASTM E 329 and ASTM E 548.

(m) Reports: Written report of each test/inspection; including complete details of conditions, methods, and results, signed by responsible individual.

(n) Reference Standards: Where products or workmanship is specified by reference to a document not included in the Contract Documents, comply with the requirements of the document, except where more stringent requirements are specified.

(o) Date of Issue: As indicated in each instance except where a specific date is established by code.

(p) Copies on Site: Keep copies of referenced standards that prescribe installation or workmanship standards on site until completion.

(q) Substantial Completion – Substantial completion for each building occurs when the work is sufficiently complete in substantial concordance with the final approved drawings so that the Air Force can occupy such building (meeting similar standards as those of Certificate of Occupancy per the City of El Segundo requirements) including final acceptance by

the Fire Authority. The committee determining substantial completion shall be made up of an Air Force representative, a Developer team member, an Army Corps of Engineers rep, one person from the El Segundo Fire Department, and a NAVFAC representative.

#### **8.4 TEMPORARY FACILITIES AND CONTROLS:**

(a) Developer will provide the following:

(1) Provide construction trailer office space (3200 SF) to support the 61st ABG Redevelopment Office personnel. Standard office configuration and connection to required utilities.

(2) Provide access to common conference room area to be shared by the Developer and Redevelopment office.

(b) The Developer will comply with energy conservation measures as specified by the Air Force.

(c) Developer shall be given access to the water supply, consisting of connection to existing facilities at no cost to Developer.

(d) Vehicular Access and Parking: Developer shall comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

(1) Parking for Construction Workers: By Developer.

(2) Do not allow vehicle parking on existing pavements to remain.

(3) Provide one parking space reserved for use of Air Force.

(e) Traffic Controls: Provide as necessary during construction to maintain safe campus traffic conditions. Change as often as necessary during construction to adhere with project phasing.

(f) Security: Protect the work, existing facilities, and Air Force's operations from unauthorized entry, vandalism, and theft.

(g) Dust Control:

- Exterior: Minimize raising dust, preventing dispersal of air-borne dust into atmosphere and over adjacent property.

(h) Noise Control:

- Outdoors: Limit conduct of especially noisy exterior work to the hours of 7 am to 6 pm or as per City of El Segundo ordinances.

(i) Waste Control: Provide waste storage and removal as required to maintain site in clean and orderly condition.

- Waste Removal Service: Daily; including dumpsters.

(j) Pest and Rodent Control:

- Pest Control Service: Weekly treatments.

(k) Pollution Control: Comply with federal, State, and local regulations.

(l) Project Identification Sign: By Developer to Air Force's design.

- No other signs allowed on site without Air Force permission except those required by law.

(m) Removal of Temporary Facilities, Utilities, and Controls: Prior to Substantial Completion; including clean up, restoration of existing facilities used to original condition, restoration of permanent facilities used to specified condition, and repair of damage.

## **8.5 MISCELLANEOUS CONTRACT PROCESS:**

(a) Pre-Construction Survey: To be prepared by Air Force; control and reference points will be indicated. The Air Force will provide utility maps, Title Report, Aerial based Topography of Base with all property lines, easements and all improvements within 25 meters of base perimeter identified. Air Force shall also identify the Official Benchmark for Los Angeles Air Force Base and the location of all property corner monuments on the project.

(b) Punch List – A comprehensive walk through shall be conducted with the Air Force to identify and non-conforming or incomplete items to be corrected in a reasonable time frame. This Punch List walk through shall be performed prior to Air Force installation of any Government Furnished, Government Installed (GFGI) items as described in Exhibit E, the FF&E Matrix. Any subsequent damage will be the responsibility of the Air Force or its contractors to correct. Air Force will hold back from final lease payment to Developer 120% of the cost of any remaining punchlist work until such punchlist work is completed.

(c) Change Orders – .

(1) Changes. Secretary may, in writing, request changes in the Contract Documents, request additional Work, or direct the deletion of Work previously ordered. Any such change in the Work shall be effectuated by a Change Order. A "Change Order" is a

written instrument prepared by Developer for Secretary's approval and, if approved by Secretary, signed by Secretary and Developer setting forth their agreement upon (i) a change in the Work, if any; (ii) the cost of such change in the Work including the profit and fee for the Developer (Developer will use the same formula for profit and fee as Developer used in connection with its assumptions in the selected Proposal), Contractor and subcontractors and the cost for a delay in the schedule; and (iii) the amount of any adjustment in the scheduled date of Substantial Completion and Beneficial Occupancy. The Developer shall not proceed with any additional work contemplated by the request from the Secretary, nor shall the Secretary be liable for any increased costs associated with such a request, until the Change Order is properly approved and signed by the Secretary. All Change Orders issued pursuant to this provision shall be subject to the disclosure process in 10 U.S.C. Section 2306a.

(2) Change Order Request. Secretary shall request a change in the Work by giving Developer a written request for a Change Order ("Change Order Request"), setting forth in detail the nature of a proposed change in the Work. Upon receipt of a Change Order Request, Developer shall forthwith obtain cost information from Contractor and shall furnish to Secretary a statement setting forth in reasonable detail, with a labor and material breakdown by trades and work classifications, Developer's proposal for the total costs attributable to the changes set forth in such Change Order Request (which shall include (a) a summary of the cost of the delay in the schedule for the Work including the Delay Fee ("Change Order Delay Expense") and (b) a statement of the fees of Developer, Contractor and the applicable subcontractors for such work), a proposed adjustment, if any, of the construction schedule and scheduled date of Substantial Completion and Beneficial Occupancy resulting from such proposed change and any proposed adjustments of time and costs related to unchanged Work resulting from such proposed change. The Change Order Delay Expense shall include the Delay Fee. Secretary shall respond to Developer's estimate within a reasonable period of time not to exceed five (5) days. If Secretary approves in writing Developer's proposal, a Change Order shall be issued by Developer, failure of Secretary to respond within such five (5) day period shall be deemed Secretary's rejection of such Change Order Request and Developer shall not perform any work which was part of such request and Developer shall have no further obligation to perform any work set forth in the proposed Change Order.

(3) Change Order. In the case of any change with respect to the Work, or, if with respect to any other Change Order Request, if no agreement can be reached between Secretary and Developer, either party may request the disagreement be resolved by using Alternative Dispute Resolution (ADR) techniques in accordance with the process described in paragraph 22 (w) of the Purchase and Sale Agreement. If the dispute is submitted to ADR, the adjustment for costs shall be determined on the basis of reasonable expenditures of those performing the Work attributable to the change, including the Change Order Delay Expense, and an allowance to the Developer for overhead (3%) and profit (9%). In such case, Developer shall submit an itemized accounting together with appropriate supporting data. The costs for the Change Order will include:

.1 costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

- .2 costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 rental costs of machinery and equipment;
- .4 costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 additional costs of supervision and field office personnel for the Contractor and the appropriate subcontractors directly attributable to the change.

The review for ADR purposes shall be used to verify the direct costs attributable to such Change Order Request and the costs, expenses and losses associated with the Change Order Delay Expense but in no event shall Developer be forced to perform the additional work for a cost less than the amount Developer is charged by the Contractor and its subcontractors. No Change Order Work will be performed without a written agreement between Secretary and Developer.

(4) Execution of Change Order. Each Change Order shall obligate Secretary to make payment in full for the modified work described in the Change Order in advance of Developer's performance of such work out of management reserve or lease payments. If a Change Order is approved that will increase the lease amount, a modification to the lease both acceptable to the Secretary and Developer will also need to be done concurrently with the Change Order.

(d) Dispute Resolution: A mediator shall resolve any disputes that are not able to be reasonably resolved between the parties. If mediation fails, the dispute shall be resolved by ADR per the Purchase and Sale agreement.

## **8.6 CONSTRUCTION SUBMITTALS:**

- (a) The Developer shall during construction:
  - (1) Provide and distribute submittal data during the construction phase in an orderly sequence so as to prevent delays in the work;
  - (2) Construct aesthetic mock-ups as required during the construction phase allowing adequate time for on-site review;
  - (3) Establish, maintain, and distribute copies of the submittals register to the Air Force; and
  - (4) Maintain a submittal approval file at the job site for review by project personnel.

## 8.7 CLOSEOUT SUBMITTALS:

(a) Maintenance Manuals: Assemble system design information, operation and maintenance data, and copies of warranties into manuals, organized by functional system (e.g. plumbing, HVAC, etc.) or material type (e.g. flooring, wall finishes, etc.) as appropriate using specification numbers where applicable. O and M manuals will be submitted on CD('s) in Adobe Acrobat inclusive of the following requirements:

(1) Binders: 3-ring, D-ring, with hard cover, project title on spine, Table of Contents in each volume, and stiff dividers with labeled tabs; contents divided into logical binders not more than 3 inches (75 mm) thick (as well as electronic copies)

(2) Directory: Names, addresses, telephone numbers, of all design and construction entities, including subcontractors and suppliers, with names of products supplied.

(3) Software-Operated Systems and Equipment: Detailed program documentation, a general review of the programming approach, description of use on this project, and description of possible user-modifications.

(4) Drawings: Bound into manuals, folded to size of binder (as well as electronic copies)

(5) Product Listing: Manufacturer's brand name for each major product actually installed, in alphabetical order by generic product name, cross-referenced to specification numbers and Table of Contents of manuals. Include also a complete directory of manufacturer's representatives serving this project inclusive of complete company name, contact name(s), full address, telephone and facsimile numbers, e-mail addresses and web sites.

(6) Warranties: Photocopies of originals.

(7) Project Record Documents: During construction maintain on site one set of all documents forming the contract, including drawings, recording all changes made by addenda, by formal modifications, and in performing the work, for Air Force's future reference.

(8) Storage: Separately from documents used for construction, in location where they can be kept clean and safe from fire and damage.

(b) Changes to be Recorded Include:

(1) Actual measured locations (horizontal and vertical) of foundations and concealed utilities and appurtenances, referenced to visible permanent appurtenances.

(2) Field changes of dimension and detail and details not on original documents.

(3) Actual products used, in specification, with brand name or model number.

(c) Submittal Copy of Drawings: All marks copied to a clean set of prints. Submit an updated copy of as-built drawings in AutoCAD 2000 format within 60 days of Beneficial Occupancy.

## **8.8 BENEFICIAL OCCUPANCY:**

(a) In order to insure that the Air Force will be able to move into the facilities in a timely fashion, the Developer shall be required to deliver areas of the project prior to completion of the entire facility. This will allow the Air Force to perform a staged personnel relocation ensuring the earliest possible Air Force occupancy of the new facilities.

(b) Air Force shall be granted access to the following spaces in order to perform the required GFE installation, cable and data configuration to support building personnel.

(1) Cable vault (or entrance facility) shall be delivered 90 days prior to Beneficial Occupancy over.

(2) Telecommunication rooms and equipment rooms shall be delivered at staggered intervals with the earliest rooms being available no later than 60 days prior to the beneficial occupancy date. All Telecommunication rooms will be delivered not later than 30 days prior to beneficial occupancy date.

(3) The Dial Central Office (DCO), Consolidated Network Control Center (CNCC), and Battery Room shall be delivered 30 days prior to Beneficial Occupancy.

(4) Out Side Plan (OSP) duct work (cabling to be installed by Air Force) shall be delivered 60 days prior to beneficial occupancy.

(c) Access to a service elevator and shared access to the loading dock shall also be required 60 days prior to final Air Force tenants move in.

(d) Developer shall provide the Air Force selected systems furniture contractor access to the facilities (for furniture installation) on a floor-by-floor basis starting 60 days prior to Beneficial Occupancy.

(e) Access to 100% of the systems furniture floor space must be provided NLT 30 days prior to the beneficial occupancy date.

In addition, the Developer shall cause to provide a stable power source for installation and testing of GFE.

The New Facility Delivery Date will be adjusted outward on a day-for-day basis if any of the above access dates or stable power requirements are not met for reasons other than a Secretary Delay or Government caused delays.

### **8.9 O & M MANUALS AND AS-BUILT DRAWINGS:**

The Developer shall submit operations and maintenance manuals for all equipment and materials included in the project where such data are available from the manufacturer. Operations and maintenance manuals shall be provided at least 30 days before Beneficial Occupancy. The Developer shall provide training to designated LAAFB personnel from manufacturer trained technicians on the operation and maintenance of all building systems for which maintenance is required. In addition, the Developer will provide the Air Force with a copy of as-built drawings of the completed facility. Drawings will be in AutoCAD format.

### **8.10 WARRANTIES & GUARANTEES:**

The Developer shall submit a complete set of warranty and guarantee information and certificates. The submittal shall be itemized and organized into binders by discipline, system and equipment.

### **8.11 FINAL COMPLETION:**

For purposes of this Agreement, the project will be deemed to be finally complete ("Final Completion") upon (i) completion of all punchlist items (as reasonably determined by the Air Force and Developer) and (ii) Developer's submittal of operations and maintenance manuals as required in Section 8.9 above.

## **9. EXHIBITS/SCHEDULES**

All exhibits and schedules are incorporated herein.

# EXHIBIT A

## LAAFB FIXTURES, FURNISHINGS, AND EQUIPMENT MATRIX

### SCOPE OF WORK MATRIX

Los Angeles Air Force Base, SAMS project

12-Nov-03



BF Builder Furnished  
 BI Builder Installed  
 GF Government Furnished  
 GI Government Installed

NOTE: This exhibit is to complement and clarify Appendix A, Appendix A will govern this document in case of conflict on any individual item.

COST CODE	DESCRIPTION	DESIGN	MATERIAL	INSTALLATION	COMMENTS (Material & Install Respn.)
	<b>SURVEYING</b>				
	Building Pad Certification	BF	BF	BI	Catellus to provide
	Property Corner layout	GF	GF	GI	
	Project Benchmark Establishment	GF	GF	GI	
	Foundations & Structural Layout	BF	BF	BI	
	Sitework (Hardscape & Softscape) Layout	BF	BF	BI	
	<b>LANDSCAPING</b>				
	Softscape outside SAMS project Limits	GF	GF	GI	Design by Builder limited to master plan & concept
	Exterior Potted Plants	GF	GF	GI	
	Interior Potted Plants	GF	GF	GI	
	Landscaping within planters within contract limits	BF	BF	BI	
	<b>HARDSCAPE</b>				
	Hardscape outside SAMS project Limits	BF	GI	GI	Design by Builder limited to master plan & concept
	Foundations for AF Monuments	BF	BF	BI	
	Pedestals for AF Monuments	BF	GF	GI	
	Tensile Structure Foundations	BF	BF	BI	
	Tensile Structures above foundations	BF	GF	GI	
	AF Monuments	GF	GF	GI	
	Flagpoles	BF	BF	BI	
	Canopy, Pathway & Bridge to Aerospace Corp	BF	GF	GI	Design by Builder limited to master plan & concept
	Trash & Mechanical Enclosures for SAMS project	BF	BF	BI	
	Hardscape North, East & West of ABG I (CBSC) Building	GF	GF	GI	
	Hardscape South of ABG I (CBSC) Building	BF	BF	BI	
	Bike Racks, Benches, Ash & Trash	GF	GF	GI	
	Curbs & Roadway @ East & West Ring Road surrounding SAMS complex	BF	BF	BI	
	Security Stations & Associated Entry Features/Base Perimeter Fencing	GF	GF	GI	
	<b>WET UTILITIES</b>				
	Water service connection to within 5' of building	BF	BF	BI	
	Water Service Backflow valve, PRV	BF	BF	BI	
	Water service from Base Loop System to 5' outside building	BF	BF	BI	
	Base Perimeter Loop System	GF	GF	GI	
	Interruption & Relocation of Storm Drain Line around Bldg A	BF	BF	BI	
	Roof drains to 5' outside building	BF	BF	BI	
	Roof drain connections from 5' outside building to face of curb	BF	BF	BI	
	Roof top equipment condensate drains	BF	BF	BI	
	Vent system penetrations thru roof	BF	BF	BI	
	Building underground	BF	BF	BI	
	Parking Area Catch Basins, Hard & Softscape Areadrains & Associated Underground piping	BF	BF	BI	Within SAMS contract limit line only
	Reclaimed water from "loop" location to 5' outside building	BF	BF	BI	
	Reclaimed water loop	GF	GF	GI	
	Reclaimed water between 5' outside building and building	GF	GF	GI	
	Filtration system for Reclaimed water	GF	GF	GI	
	Reclaimed water piping within building to water closets & urinals	BF	BF	BI	not applicable at CDC
	Fire Hydrants and Fire Line for ABG (CBSC) Building	GF	GF	GI	
	Site Storm Water Detention, Retention & Clarification Systems	GF	GF	GI	Per Appendix A
	Base Fire Loop	GF	GF	GI	
	Double detector check valve, Backflow valve	GF	GF	GI	on Base Loop System
	PIV & PRV	BF	BF	BI	
	Fire water service from 5' outside building to Loop	BF	BF	BI	
	Meters	GF/BF	GF/BF	GI/BI	Per Appendix A
	<b>DRY UTILITIES</b>				
	Methane Vent System	BF	BF	BI	At Buildings only, not site
	Methane Detection System	BF	BF	BI	
	Methane Membrane	BF	BF	BI	
	Gas service from Gas Meter complete to rooftop units	BF	BF	BI	
	Gas Service from "Loop" to Gas Meter	GF	GF	GI	
	Gas Meter	GF	GF	GI	

COST CODE	DESCRIPTION	DESIGN	MATERIAL	INSTALLATION	COMMENTS (Material & Install Respn.)
	Electrical Loop System & Manholes	GF	GF	GI	
	Electrical Conduit to Transformer Pad from Loop	BF	BF	BI	
	Conductors from Loop to Transformers	GF	GF	GI	
	Conductors from Transformers to Main Building Services	GF	GF	GI	
	Telephone/Comm Loop System & Manholes	GF	GF	GI	
	Tel Cabling to MPO/Cable Vault	GF	GF	GI	
	Data Loop System & Manholes	GF	GF	GI	
	Data Cabling from Loop to Building Switch	GF	GF	GI	
	Data Conduit and Raceways from Loop to Building	BF	BF	BI	
	<b>MISC. STEEL</b>				
	Metal backing or supports for GF/GI Equipment FF&E	BF	BF	BI	Required if design requirements are delivered to Builder prior to start of construction documents
	Pipe bolards: meter locations, dock, dumpster, transformer, etc.	BF	BF	BI	
	Roof access ladders	BF	BF	BI	
	Trash enclosure gates	BF	BF	BI	
	Chain link or ornamental fencing	BF	BF	BI	Within Base perimeter only and within our area of work, does not include any fencing at the Aerospace Parcel P1.
	Sleeves & embeds for tenant supplied items	BF	BF	BI	Required if design requirements are delivered to Builder prior to start of construction documents
	Trellis/Tensile Structures	GF	GF	GI	
<b>08100</b>	<b>FINISH CARPENTRY / MILLWORK</b>				
	Restroom counters and tops	BF	BF	BI	
	Mail Boxes				Not Applicable
	Video Projection ports	BF	BF	BI	
	Office countertops, shelving, cabinets	GF	GF	GI	
	Public telephone counters				Not Applicable
<b>06240</b>	<b>INSULATION</b>				
	Pipe insulation	BF	BF	BI	
	Acoustic Insulation in walls to achieve STC ratings	BF	BF	BI	
	Thermal insulation in exterior walls	BF	BF	BI	
	Thermal batt insulation on underside of roof decking	BF	BF	BI	
	Duct insulation	BF	BF	BI	
	Acoustic Consultant requirements at roof area	BF	BF	BI	
	<b>ROOFING</b>				
	Building roofing	BF	BF	BI	
	Maintenance	BF	GF	GI	Specifications for annual roof inspections and maintenance will be specified by roofing subcontractor
	<b>SHEET METAL</b>				
	Building c/s flashing & sheetmetal	BF	BF	BI	
	Curbs and counterflashing for rooftop equipment	BF	BF	BI	
	Backing for Displays and Cabinetry	BF	BF	BI	Will be performed by builder to the extent that requirements are made known during design
	Sheetmetal platform covers for rooftop equipment	BF	BF	BI	
	Expansion joints and covers	BF	BF	BI	as required
<b>08360</b>	<b>DOORS / FRAMES / HARDWARE</b>				
	Emergency exit doors and hardware	BF	BF	BI	
	Exterior doors (except emergency exiting)	BF	BF	BI	
	Aluminum and glass entry doors	BF	BF	BI	
	Stainless and shaft doors	BF	BF	BI	
	Interior doors (except exit doors)	BF	BF	BI	
	Controlled access hardware - Electric Strikes	BF	BF	BI	
	Plastic laminate door cladding	BF	BF	BI	
	Construction cores, keying & keys	BF	BF	BI	
	X07 or equivalent Locks for SCIF entries	GF	GF	GI	
	Cypher Locks @ computer, equipment & telecom rooms	BF	BF	BI	
	Final cores, keying & keys	GF	GF	GI	
	<b>SPECIALTY DOORS</b>				
	Overhead doors	BF	BF	BI	if required
	Fire rated doors at elevator openings	BF	BF	BI	
	Operable Partitions in Conference Center	BF	BF	BI	
	Acoustical Partition in CDC	BF	BF	BI	

COST CODE	DESCRIPTION	DESIGN	MATERIAL	INSTALLATION	COMMENTS (Material & Install Respn.)
08020	<b>GLASS &amp; GLAZING</b>				
	Rear Projection port frame, glass & glazing	BF	BF	BI	
	Exterior window: glass and aluminum storefront	BF	BF	BI	
	Exterior entry doors	BF	BF	BI	
	Restroom mirrors	BF	BF	BI	
	Interior door & sidelight vision lites	BF	BF	BI	where required by code & CDC specs
	Final cleaning of exterior glass	BF	BF	BI	
	Final cleaning of interior glass and mirror	BF	BF	BI	
	<b>CERAMIC TILE / STONE</b>				
	Restroom floor and walls	BF	BF	BI	
	Lobby Flooring	BF	BF	BI	
	3 restrooms in OL-1 & 2	BF	BF	BI	
	<b>RESILIENT FLOORING</b>				
	VCT and base	BF	BF	BI	
	Rubber base at carpeted areas	BF	BF	BI	
	Flooring in Art Services, etc as represented in Finish Schedules	BF	BF	BI	
	<b>CARPET</b>				
	Open Office Area Carpeting	BF	BF	BI	
	Private Office & Conf Room Carpeting	BF	BF	BI	
	Suite Office Carpeting	BF	BF	BI	
	Access Floor Carpet Tiles	BF	BF	BI	
	Conference Center & Club Carpeting	BF	BF	BI	
	Lobby Entry Mats	GF	GF	GI	
	<b>FIRE EXTINGUISHERS</b>				
	Fire extinguishers and cabinets	BF	BF	BI	
	Wall mounted extinguishers	BF	BF	BI	
	<b>OWNER FURNISHED &amp; INSTALLED EQUIPMENT</b>				
	Artwork & Public Displays: Lobby and Public Areas	GF	GF	GI	AF to advise Builder of locations for coordination of any required lighting and wall backing
	<b>SIGNAGE</b>				
	Restroom signage: ADA required	BF	BF	BI	
	Elevator and stair signage: ADA required	BF	BF	BI	
	Exit signage: Code required	BF	BF	BI	
	Monument Sign Foundation	BF	BF	BI	
	Monument Sign	BF	BF	BI	
	Building Address & Wall Mounted ID	BF	BF	BI	
	Construction Project Signage	BF	BF	BI	
	Site Directional/Wayfinding signage	GF	GF	GI	
	Occupant Signage/Room Identification	GF	GF	GI	
	Graphics	GF	GF	GI	
	Directories	GF	GF	GI	
	Building Wayfinding Signage	GF	GF	GI	
	<b>PROJECTION SCREENS</b>				
	Screens	GF	GF	GI	
	Backing for Screens	BF	BF	BI	
	Power & Switching for Projection Screens	BF	BF	BI	Power and switching in locations as identified in Appendix A
	<b>PROJECTION EQUIPMENT</b>				
	Projectors	GF	GF	GI	
	Projector Lifts	GF	GF	GI	
	Sound racks	GF	GF	GI	
	Audio Terminal Boards	GF	GF	GI	
	Background music system equipment	GF	GF	GI	
	Conduit & raceways	BF	BF	BI	
	cabling	BF	BF	BI	
	Power & Data connection for Projectors & Projector Lifts	BF	BF	BI	
	<b>PRESENTATION ROOM ANNUNCIATION SYSTEM</b>				
	Unistrut support system	GF	GF	GI	
	Wall brackets	GF	GF	GI	
	Speaker installation	GF	GF	GI	
	Backing for Wall Mounted Equipment	GF	BF	BI	Need design & locations prior to beginning of Interiors Construction Documents

COST CODE	DESCRIPTION	DESIGN	MATERIAL	INSTALLATION	COMMENTS (Material & Install Respn.)
<b>COURTROOM SEATING</b>					
	Layout	BF			
	Seat brackets & Anchors	GF	GF	GI	
	Courtroom Seating	GF	GF	GI	
<b>FURNITURE SYSTEMS</b>					
	Tenant Improvement Plan	BF	N/A	N/A	
	Dimensioned Furniture system Plan	GF	N/A	N/A	
	Individual workstation layout & planning	GF	N/A	N/A	
	Filing Cabinets	GF	GF	GI	
	Task Lighting	GF	GF	GI	
	Electrical within Furniture systems	GF	GF	GI	
	Seating	GF	GF	GI	
	Conference room, Training Room, Conf Center & Presentation Center	GF	GF	GI	all furniture including tables, cabinets, desks & chairs
	Desktops, Drawers, Cabinets and Partitions and all associated furniture	GF	GF	GI	
	Glazing within furniture panels	GF	GF	GI	
	White Boards, tack boards and tool rails w/in furn. Syst.	GF	GF	GI	
	Copier / Fax / Office Supply / Mail Distribution & Sorting Furniture	GF	GF	GI	
	Elevator Operator/System Charges for elevators during furniture system installation	GF	GF	GI	
	Partitioning of Training Areas to smaller workrooms	GF	GF	GI	
<b>KITCHEN &amp; BAR EQUIPMENT (Consolidated Club)</b>					Equipment Layout Design & Specification by Builder UNO, Kitchen Programming & Listing of Equipment by Govern.
	Clocks	GF	GF	GI	
	Timelocks	GF	GF	GI	
	Ash trays and receptacles	GF	GF	GI	
	Waste receptacles & Dumpsters	GF	GF	GI	
	Benches and planters	GF	GF	GI	
	Rope, hooks, poles for queuing lines	GF	GF	GI	
	Storage racks, shelving, cabinets	BF	GF	GI	
	Trash compactor	BF	GF	GI	
	Janitorial supplies and equipment	GF	GF	GI	
	Restroom supplies	GF	GF	GI	
	Storage of all Owner Surplus materials	GF	GF	GI	
	Walk-in Cold Storage	BF	GF	GI	
	Reach-in Refrigerator	BF	GF	GI	
	Depressed Slab @ Walk-in Cold Storage	BF	BF	BI	
	Reach-in Freezer	BF	GF	GI	
	Ice Machine	BF	GF	GI	
	Hand Sink	BF	GF	GI	
	Food Prep/Pot Sinks	BF	GF	GI	
	Hot/Cold Food Carts	BF	GF	GI	
	Range	BF	GF	GI	
	All Cookware & Utensils	GF	GF	GI	
	All food serving devices and warming tables/buffet tables	BF	GF	GI	
	Baking Oven	BF	GF	GI	
	Toaster	BF	GF	GI	
	Microwave Oven	BF	GF	GI	
	Milk Dispenser	BF	GF	GI	
	Dishwasher	BF	GF	GI	
	Dishwasher Hood	BF	GF	GI	
	Garbage Disposal	BF	BF	BI	
	Dishwasher Tables	BF	GF	GI	
	Steamer	BF	GF	GI	
	Convection Oven	BF	GF	GI	
	Jacketed Kettle	BF	GF	GI	
	Exhaust Hood	BF	GF	GI	
	Exhaust Hood Fire Suppression	BF	GF	GI	
	Exhaust Hood Pollution Scrubber	BF	BF	BI	As Required by Code
	Black Iron Ductwork incl fire sprinklers	BF	BF	BI	
	Food Mixer / Processor	BF	GF	GI	
	Meat Slicer	BF	GF	GI	
	Prep Tables	BF	GF	GI	
	Insect Control Equip.	BF	BF	BI	
	Garbage Compactors	BF	GF	GI	
	Electric Can Opener	GF	GF	GI	
	Bussing Carts	GF	GF	GI	
	Built-in Shelving	BF	BF	BI	
	Movable Shelving	BF	GF	GI	
	Water Temp. Boosters	BF	GF	GI	

COST CODE	DESCRIPTION	DESIGN	MATERIAL	INSTALLATION	COMMENTS (Material & Install Respn.)	
	Dirty Dish Conveyance System	BF	GF	GI	Builder to provide rough-in for acceptance of AF furnished equipment	
	Tray Storage	BF	GF	GI		
	Food Serving Equipment, Trays & Stands	BF	GF	GI		
	Floor Sinks	BF	BF	BI		
	Single Point Utility Connections to all AF Furnished Equipment	BF	BF	BI		
	Dishes, cookware & utensils	GF	GF	GI		
	<b>LAUNDRY EQUIPMENT</b>					
	Clothes Washer & Dryer	GF	GF	GI		
	Laundry cart	GF	GF	GI		
	Laundry Sink	BF	BF	BI		
	Built-in Counter	BF	BF	BI		
	Built-in Shelving	BF	BF	BI		
	Shelving systems	GF	GF	GI		
	<b>PLAYGROUND EQUIPMENT (CDC)</b>					
	Matting (if required)	GF	GF	GI		
	Play Surfaces under play equipment	GF	GF	GI		
	Aggregate & Drainage under play equipment	BF	BF	BI		
	General athletic equipment	GF	GF	GI		
	Pavement Markings	GF	BF	BI		
	Playground Storage sheds	BF	BF	BI		
	Patios, Bike Path, Mow Strip, Landscape	BF	BF	BI		
	<b>CDC EQUIPMENT</b>					
	Furniture - Lounge, Eating	GF	GF	GI		
	Desks & Benches	GF	GF	GI		
	Cots, cribs & Sleeping mats	GF	GF	GI		
	Stimulation Equipment	GF	GF	GI		
	Built-in Casework & Cabinetry	BF	BF	BI		
	Fixed & moveable Seating	GF	GF	GI		
	Compact Refrigerators	GF	GF	GI		
	Toys	GF	GF	GI		
	Built-In Shelving	BF	BF	BI		
	Moveable Storage	GF	GF	GI		
	Built-in Cubbies	BF	BF	BI		
	Moveable Cubbies	GF	GF	GI		
	Display Boards/Whiteboards/Tackboards	BF	BF	BI		
	Dry Erase Boards	BF	BF	BI		
	Wall Clocks	GF	GF	GI		
	Tables, Desks & Chairs	GF	GF	GI		
	File Cabinets	GF	GF	GI		
	Cash Register & computers	GF	GF	GI		
	Office Equipment	GF	GF	GI		
	Lounge Seating	GF	GF	GI		
	Janitorial Cart	GF	GF	GI		
	<b>KITCHEN &amp; BAR EQUIPMENT (CDC)</b>					
					Equipment Layout Design & Specification by Builder UNO, Kitchen Programming & Listing of Equipment by Govern., Where Cost Responsibility is Listed as AF, a Change Order shall be forthcoming to reimburse "Builder" for the cost of the work	
	Clocks	GF	GF	GI		
	Timeclocks	GF	GF	GI		
	Ash trays and receptacles	GF	GF	GI		
	Waste receptacles & Dumpsters	GF	GF	GI		
	Benches and planters	GF	GF	GI		
	Rope, hooks, poles for queuing lines	GF	GF	GI		
	Storage racks, shelving, cabinets	BF	GF	GI		
	Trash compactor	BF	GF	GI		
	Janitorial supplies and equipment	GF	GF	GI		
	Restroom supplies	GF	GF	GI		
	Storage of all Owner Surplus materials	GF	GF	GI		
	Walk-in Cold Storage/Refrigerator	BF	GF	GI		
	Reach-in Refrigerator	BF	BF	BI	Cost Responsibility by AF	
	Depressed Slab @ Walk-in Cold Storage	BF	BF	BI		
	Reach-in Freezer	BF	GF	GI		
	Ice Machine	BF	GF	GI		
	Hand Sink	BF	BF	BI	Cost Responsibility by AF	
	Food Prep/Pot Sinks	BF	BF	BI	Cost Responsibility by AF	
	Hot/Cold Food Carts	BF	GF	GI		
	Range	BF	GF	GI		

COST CODE	DESCRIPTION	DESIGN	MATERIAL	INSTALLATION	COMMENTS (Material & Install Respn.)
	All Cookware & Utensils	GF	GF	GI	
	All food serving devices and warming tables/buffet tables	BF	GF	GI	
	Baking Oven	BF	GF	GI	
	Toaster	BF	GF	GI	
	Microwave Oven	BF	GF	GI	
	Milk Dispenser	BF	GF	GI	
	Dishwasher	BF	GF	GI	
	Dishwasher Hood	BF	BF	BI	Cost Responsibility by AF
	Garbage Disposal	BF	BF	BI	Cost Responsibility by AF
	Dishwasher Tables	BF	GF	GI	
	Steamer	BF	BF	BI	Cost Responsibility by AF
	Convection Oven	BF	GF	GI	
	Jacketed Kettle	BF	GF	GI	
	Exhaust Hood	BF	BF	BI	Cost Responsibility by AF
	Exhaust Hood Fire Suppression	BF	BF	BI	Cost Responsibility by AF
	Exhaust Hood Pollution Scrubber	BF	BF	BI	As Required by Code
	Black Iron Ductwork and fire sprinklers	BF	BF	BI	
	Food Mixer / Processor	BF	GF	GI	
	Meat Slicer	BF	GF	GI	
	Prep Tables	BF	GF	GI	
	Insect Control Equip.	BF	BF	BI	
	Garbage Compactors	BF	GF	GI	
	Electric Can Opener	GF	GF	GI	
	Bussing Carts	GF	GF	GI	
	Built-in Shelving	BF	BF	BI	
	Movable Shelving	BF	GF	GI	
	Water Temp. Boosters	BF	BF	BI	Cost Responsibility by AF
	Dirty Dish Conveyance System	BF	GF	GI	Builder to provide rough-in for acceptance of AF furnished equipment
	Tray Storage	BF	GF	GI	
	Food Serving Equipment, Trays & Stands	BF	GF	GI	
	Floor Sinks	BF	BF	BI	
	Single Point Utility Connections to all AF Furnished Equipment	BF	BF	BI	
	Dishes, cookware & utensils	GF	GF	GI	
	<b>MISC. EQUIPMENT</b>				
	Clothing & Storage Lockers	BF	BF	BI	CDC only
	Storage racks, shelving, cabinets	GF	GI	GI	Part of furniture system
	<b>FIRE SPRINKLERS</b>				
	Sprinklers in Occupied Space	BF	BF	BI	Sprinklers in CDC are not required (? - checking specifications)
	Sprinklers under Access floor				Not Required
	FM 200 System				Not Required
	Site Fire Water Piping from Base Fire Loop to Building	BF	BF	BI	
	Flow alarm	BF	BF	BI	
	Grease duct sprinklers	BF/GF	BF	BI	
	Exit corridor sprinklers req'd. to achieve building exiting	BF	BF	BI	
	Fire pump	N/A			Not required
	<b>PLUMBING</b>				
	Furnish interior plumbing fixtures	BF	BF	BI	
	Furnish flow control sensors	BF	BF	BI	as required by Appendix A
	Furnish water heaters	BF	BF	BI	
	Furnish drinking fountains	BF	BF	BI	
	Interior Reclaimed Water Piping to Urinals & Water Closets	BF	BF	BI	
	<b>HVAC</b>				
	Install HVAC equipment and control system	BF	BF	BI	
	F&I ductwork, including sheet metal roof plenum at RTU's	BF	BF	BI	
	F&I duct detectors	BF	BF	BI	
	F&I dampers: fire, smoke/fire, volume, etc.	BF	BF	BI	
	F&I exhaust fans including roof penetrations	BF	BF	BI	
	Install grease duct from Hood through Building & Roof	BF	BF	BI	
	Control wiring	BF	BF	BI	
	Furnish HVAC equipment, rooftop equipment, VAV, FPU, filters	BF	BF	BI	
	Furnish HVAC Temperature Control & Bldg. Automation System	BF	BF	BI	
	Furnish rooftop equipment curbs	BF	BF	BI	
	Test & Balance	GF	GF	GI	
	Commissioning				See Appendix A & GSA/DOE Commissioning Guide for specific responsibilities
	Commissioning Authority	GF	GF	GI	
	Verification of System Performance	GF	GF	GI	

COST CODE	DESCRIPTION	DESIGN	MATERIAL	INSTALLATION	COMMENTS (Material & Install Respn.)
<b>ELECTRICAL</b>					
	Furnish electrical equipment (per single line diagram)	BF	BF	BI	
	Exit corridor electrical to achieve building exiting	BF	BF	BI	
	Exterior security surveillance & pedestrian lighting and power	BF	BF	BI	
	Main transformer	GF	GF	GI	
	Main distribution panel and motor panel	BF	BF	BI	
	Subpanels	BF	BF	BI	
	Secondary conduit	BF	BF	BI	
	Secondary feeders from transformer to building service	GF	GF	GI	
	Interior power system conduit and wire	BF	BF	BI	
	Disconnects for FF&E equipment	BF	BF	BI	
	Exterior signage conduit and power	BF	BF	BI	
	Exterior signage disconnects	BF	BF	BI	
	Fire Alarms System	BF	BF	BI	
	Emergency Generator	BF	BF	BI	
	UPS & PDU Systems	GF	GF	GI	
<b>CATV &amp; VIDEO TELECONFERENCING</b>					
	Raceways & Junction Boxes	BF	BF	BI	
	Cables & Outlets	BF	BF	BI	
	Equipment Racks	GF	GF	GI	
	Cameras & Monitors	GF	GF	GI	
	Control Equipment & Master Control Equipment	GF	GF	GI	
	Power Boosters and Transformers	GF	GF	GI	
	All other equipment for system functionality	GF	GF	GI	
<b>LAND MOBILE REPEATER SYSTEM</b>					
	Raceways & Junction Boxes	GF	GF	GI	
	Cables & Outlets	GF	GF	GI	
	Equipment	GF	GF	GI	
	Conduit from BCC to Rooftop	GF	BF	BI	100% if allowance
<b>SECURITY SYSTEMS</b>					
	CCTV system: cameras, monitors, VCR, racks, cable & connectors	GF	GF	GI	AF to provide design concept & review, Builder to provide system shop drawings
	Motion sensors	GF	BF	BI	
	Conduit, Raceways & junction boxes	BF	BF	BI	
	Cabling within Conduit, raceways & junction boxes	BF	BF	BI	
	Cypher Locks @ Computer, electrical & Telcomm Rooms	BF	BF	BI	
	XO7 Locks	GF	GF	GI	
	Access Control Proximity Card Readers	GF	BF	BI	
	Duress Alarms	GF	BF	BI	
	F&I power to camera and equipment locations	BF	BF	BI	
	F&I conduit and pull boxes	BF	BF	BI	
	Door alarm system	BF	BF	BI	
	Access control system	BF	BF	BI	
	Door contactors/Balanced Magnetic Switches	GF	BF	BI	
	Specialized Entry / Screening Equipment	GF	GF	GI	
	Security Screening Hardware & Equipment	GF	GF	GI	
<b>TELEPHONE SYSTEMS</b>					
	Conduit(s) stub into main telephone room	BF	BF	BI	See "DRY UTILITIES"
	Conduits and raceways	BF	BF	BI	
	Outlets, covers and plates	BF	BF	BI	
	Telephone Switch & Housing	GF	GF	GI	
	Phone cable between Telephone Switch & Furniture system connection	BF	BF	BI	
	Cable connections	GF	GF	GI	
	Backboard: main and distribution	BF	BF	BI	
	Phone system, including voice mail system and phone sets	GF	GF	GI	
	Elevator phone and autodialer	BF	BF	BI	
	Fire alarm panel phone(s)	BF	BF	BI	
	Dedicated Phone Line & # to Elevator Machine Room from Tele Closet	GF	GF	GI	
	Control station autodialer(s) and connections	GF	GF	GI	
	Modems and connections for HVAC & inverter	GF	GF	GI	
	Payphone conduit and boxes	GF	GF	GI	
	F&I payphones	GF	GF	GI	
	Battery Backup System	GF	GF	GI	

COST CODE	DESCRIPTION	DESIGN	MATERIAL	INSTALLATION	COMMENTS (Material & Install Respn.)
<b>DATA &amp; COMMUNICATION SYSTEMS</b>					
	Conduit(s) stub into main telephone room	BF	BF	BI	See "DRY UTILITIES"
	Conduits and raceways	BF	BF	BI	
	Outlets, covers and plates	BF	BF	BI	
	Data cable (F&I)	BF	BF	BI	up to Access Floor or wall Data Boxes
	Cable connections	GF	GF	GI	
	Backboard: main and distribution	BF	BF	BI	
	UPS	GF	GF	GI	
	Cable Trays and Ladders	BF	BF	BI	
	Protected Distribution System	BF	BF	BI	
<b>WHITENOISE &amp; PA SYSTEM</b>					
	Whitenoise - Conduit	GF	GF	GI	
	Whitenoise - Wire	GF	GF	GI	
	Whitenoise - Speakers	GF	GF	GI	
	Whitenoise - Amplifiers	GF	GF	GI	
	SCIF Whitenoise - Conduit	BF	BF	BI	Basement SCIF Areas only
	SCIF Whitenoise - Wire	BF	BF	BI	Basement SCIF Areas only
	SCIF Whitenoise - Speakers	BF	BF	BI	Basement SCIF Areas only
	SCIF Whitenoise - Amplifiers & Noise Source	GF	GF	GI	Basement SCIF Areas only
	PA System - Conduit for Low voltage	GF	GF	GI	if any
	PA System - Wire for Low Voltage	GF	GF	GI	if any
	PA System - Conduit for 110 V requirements	BF	BF	BI	if any
	PA System - Wire for 110V system requirements	BF	BF	BI	if any
	PA System - Speakers	GF	GF	GI	
	PA System - Amplifier	GF	GF	GI	
<b>TEMPORARY CONSTRUCTION</b>					
	Perimeter site Fencing	BF	BF	BI	
	Temporary construction office	BF	BF	BI	
	Temporary construction office for AF/Parsons	GF	GF	GI	
	Temporary utility distribution systems from AF utility POC	BF	BF	BI	
	Utility charges for All Power/Water Usage	BF	BF	BI	
	Office Equipment for Temporary Field Office	BF	BF	BI	
	Office Equipment for Temporary Field Office for AF/Parsons	GF	GF	GI	
	Temporary Telephone System during Construction	BF	BF	BI	
	Temporary Telephone System during Construction for AF/Parsons	GF	GF	GI	
	Utility charges for Developer's Temp Telephone system	BF	BF	BI	
	Utility charges for AF/Parsons Temp Telephone system	GF	GF	GI	
<b>EMERGENCY GENERATOR SYSTEMS</b>					
	Furnish Invertor or Generator	BF	BF	BI	
	Install Invertor or Generator	BF	BF	BI	
	Hook-up	BF	BF	BI	
	Start-up and testing	BF	BF	BI	
<b>TEMPORARY POWER &amp; LIGHTING</b>					
	Temp power/lighting infrastructure for C&S work	BF	BF	BI	
	Temp power/lighting infrastructure for TI work	BF	BF	BI	
	Temp power for Furniture Systems Installation (if permanent power unavailable)	GF	GF	GI	
	Utility charges for Power Usage	GF	GF	GI	
<b>BUILDING PERMITS</b>					
	Plan check fees	GF	GF	GI	
	School fees, connection fees, etc.	GF	GF	GI	
	C&S permit	GF	GF	GI	
	T.I. Permit	GF	GF	GI	
	Health Department permit	GF	GF	GI	
<b>BUILDING CLEANUP</b>					
	C&S work	BF	BF	BI	
	T.I. Work	BF	BF	BI	
	Furniture systems / Trash / Dumpsters / Disposal	GF	GF	GI	
	Final Cleaning excl. Furniture Systems	BF	BF	BI	
	Move-in	GF	GF	GI	
<b>TESTING &amp; INSPECTION</b>					
	Material Testing	BF	BF	BI	Catellus furnish
	Deputy inspection	BF	BF	BI	Catellus furnish
	"Bldg. Dept." inspection	GF	GF	GI	

## EXHIBIT B

### 1.2 STATUTORY REQUIREMENTS FOR GOVERNMENT TRANSACTIONS

The following statutes may be applicable to this transaction. As this Agreement is between the Developer and the Secretary, the following terms and conditions shall be included in the construction contract with the Contractor, as that term is defined in the Purchase and Sales Contract.

The Project is a real estate non-Federal Acquisition Regulations and non-Defense Acquisition Regulations transaction.

#### 1.2.1 Statute Title

18 USC 874 & 40 USC 276c Copeland Act  
41 USC 423 Procurement Integrity  
31 USC 1352 Payments to Influence Certain Transactions  
40 USC 327 et seq. Contract Work Hour and Safety Requirements Act  
40 USC 276a et seq. Davis Bacon Act  
41 USC 10b Buy American Act – Construction  
41 USC 601 et seq. Contract Disputes Act  
10 USC 2692 Storage and Disposal of Toxic and Hazardous Material  
41 USC 51-58 Anti-Kickback Act

#### 1.2.2 Applicable Clauses

##### 1.2.2.1 Cancellation, Rescission, & Recovery of Funds for Illegal or Improper Activity

(a) If the Government receives information that a contractor or a person has engaged in conduct constituting a violation of subsection (a), (b), (c), or (d) of section 27 of the Office of Federal Procurement Policy Act (41 U.S.C. 423) (the Act), as amended by section 4304 of the National Defense Authorization Act for Fiscal Year 1996 (Pub. L. 104-106), the Government may --

(1) Cancel the solicitation, if the contract has not yet been awarded or issued; or

(2) Rescind the contract with respect to which --

(i) The Developer or someone acting for the Developer has been convicted for an offense where the conduct constitutes a violation of subsection 27(a) or (b) of the Act for the purpose of either --

(a) Exchanging the information covered by such subsections for anything of value; or

(b) Obtaining or giving anyone a competitive advantage in the award of a Federal agency procurement contract; or

(ii) The head of the contracting activity has determined, based upon a preponderance of the evidence, that the Developer, or someone acting for the Developer, has engaged in conduct constituting an offense punishable under subsection 27(e)(1) of the Act.

(b) If the Government rescinds the contract under paragraph (a) of this clause, the Government is entitled to recover, in addition to any penalty prescribed by law, the amount expended under the contract.

(c) The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law, regulation, or under this contract.

### **1.2.2.2 Limitation on Payments to Influence Certain Federal Transactions**

(a) Definitions.

"Agency," as used in this clause, means executive agency.

"Covered Federal action," as used in this clause, means any of the following Federal actions:

- (1) The awarding of any Federal contract.
- (2) The making of any Federal grant.
- (3) The making of any Federal loan.
- (4) The entering into of any cooperative agreement.
- (5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization," as used in this clause, have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C.450B) and include Alaskan Natives.

"Influencing or attempting to influence," as used in this clause, means making, with the intent to influence, any communication to or appearance before an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government," as used in this clause, means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a

council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency," as used in this clause, includes the following individuals who are employed by an agency:

(1) An individual who is appointed to a position in the Government under Title 5, United States Code, including a position under a temporary appointment.

(2) A member of the uniformed services, as defined in subsection 101(3), Title 37, United States Code.

(3) A special Government employee, as defined in section 202, Title 18, United States Code.

(4) An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, Title 5, United States Code, appendix 2.

"Person," as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable compensation," as used in this clause, means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable payment," as used in this clause, means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient," as used in this clause, includes the Developer and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed," as used in this clause, means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

"State," as used in this clause, means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United

States, an agency or instrumentality of a State, and multi-State, regional, or interstate entity having governmental duties and powers.

(b) Prohibitions.

(1) Section 1352 of Title 31, United States Code, among other things, prohibits a recipient of a Federal contract, grant, loan, or cooperative agreement from using appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(2) The Act also requires Developers to furnish a disclosure if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

(3) The prohibitions of the Act do not apply under the following conditions:

(i) Agency and legislative liaison by own employees.

(a) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

(b) For purposes of subdivision (b)(3)(i)(a) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(c) The following agency and legislative liaison activities are permitted at any time where they are not related to a specific solicitation for any covered Federal action:

(1) Discussing with an agency the qualities and characteristics (including individual demonstrations) of the person's products or services, conditions or terms of sale, and service capabilities.

(2) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(d) The following agency and legislative liaison activities are permitted where they are prior to formal solicitation of any covered Federal action --

(1) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(2) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Pub. L. 95-507, and subsequent amendments.

(e) Only those services expressly authorized by subdivision (b)(3)(i)(a) of this clause are permitted under this clause.

(ii) Professional and technical services.

(a) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of --

(1) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(2) Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(b) For purposes of subdivision (b)(3)(ii)(a) of this clause, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is

rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(c) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.

(d) Only those services expressly authorized by subdivisions (b)(3)(ii)(A)(1) and (2) of this clause are permitted under this clause.

(e) The reporting requirements shall not apply with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

(c) Disclosure.

(1) The Developer who requests or receives from an agency a Federal contract shall file with that agency a disclosure form, OMB standard form LLL, Disclosure of Lobbying Activities, if such person has made or has agreed to make any payment using non-appropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph (b)(1) of this clause, if paid for with appropriated funds.

(2) The Developer shall file a disclosure form at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph (c)(1) of this clause. An event that materially affects the accuracy of the information reported includes --

(i) A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

(ii) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(iii) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

(3) The Developer shall require the submittal of a certification, and if required, a disclosure form by any person who requests or receives any subcontract exceeding \$100,000 under the Federal contract.

(4) All subcontractor disclosure forms (but not certifications) shall be forwarded from tier to tier until received by the Developer. The prime Developer shall submit all disclosures to the Contracting Officer at the end of the calendar quarter in which the subcontractor submits the disclosure form. Each subcontractor certification shall be retained in the subcontract file of the awarding Developer.

(d) Agreement. The Developer agrees not to make any payment prohibited by this clause.

(e) Penalties.

(1) Any person who makes an expenditure prohibited under paragraph (a) of this clause or who fails to file or amend the disclosure form to be filed or amended by paragraph (b) of this clause shall be subject to civil penalties as provided for by 31 U.S.C.1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(2) Developers may rely without liability on the representation made by their subcontractors in the certification and disclosure form.

(f) Cost allowability. Nothing in this clause makes allowable or reasonable any costs which would otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any other provision.

### **1.2.2.3 Contract Work Hours and Safety Standards Act**

(a) Overtime requirements. No Developer or subcontractor employing laborers or mechanics shall require or permit them to work over 40 hours in any workweek unless they are paid at least 1 and 1/2 times the basic rate of pay for each hour worked over 40 hours.

(b) Violation; liability for unpaid wages; liquidated damages. The responsible Developer and subcontractor are liable for unpaid wages if they violate the terms in paragraph (a) of this clause. In addition, the Developer and subcontractor are liable for liquidated damages payable to the Government. The Contracting Officer will assess liquidated damages at the rate of \$10 per affected employee for each calendar day on which the employer required or permitted the employee to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the Contract Work Hours and Safety Standards Act.

(c) Withholding for unpaid wages and liquidated damages. The Developer will withhold from payments due under the subcontract sufficient funds required to satisfy any subcontractor liabilities for unpaid wages and liquidated damages. If amounts withheld under the subcontract are insufficient to satisfy subcontractor liabilities, the Developer will withhold payments from other Federal or Federally assisted contracts held by the same subcontractor that are subject to the Contract Work Hours and Safety Standards Act.

(d) Payrolls and basic records.

(1) The Developer and subcontractors shall maintain payrolls and basic payroll records for all laborers and mechanics working on the contract during the contract and shall make them available to the Government until 3 years after contract completion. The records shall contain the name and address of each employee, social security number, labor classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. The records need not duplicate those required for construction work by Department of Labor regulations at 29 CFR 5.5(a)(3) implementing the Davis-Bacon Act.

(2) The Developer and subcontractors shall allow authorized representatives of the Contracting Officer or the Department of Labor to inspect, copy, or transcribe records maintained under paragraph (d)(1) of this clause. The Developer or subcontractor also shall allow authorized representatives of the Contracting Officer or Department of Labor to interview employees in the workplace during working hours.

(e) Subcontracts. The Developer shall insert the provisions set forth in paragraphs (a) through (d) of this clause in subcontracts exceeding \$100,000 and require subcontractors to include these provisions in any lower-tier subcontracts. The Developer shall be responsible for compliance by any subcontractor or lower-tier subcontractor with the provisions set forth in paragraphs (a) through (d) of this clause.

#### **1.2.2.4 Davis-Bacon Act**

(a) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Developer and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (d) of this clause; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such period. Such laborers and mechanics shall be paid not less than the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in the clause entitled Apprentices and Trainees. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (b) of this clause) and the Davis-Bacon poster (WH-1321) shall be posted at all times

by the Developer and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(b)(1) The Contracting Officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The Contracting Officer shall approve an additional classification and wage rate and fringe benefits therefore only when all the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination.

(ii) The classification is utilized in the area by the construction industry.

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the Developer and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the:

Wage and Hour Division  
Employment Standards Administration  
U.S. Department of Labor  
Washington, DC 20210

The Administrator or an authorized representative will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(3) In the event the Developer, the laborers or mechanics to be employed in the classification, or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs (b)(2) and (b)(3) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(c) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Developer shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(d) If the Developer does not make payments to a trustee or other third person, the Developer may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, That the Secretary of Labor has found, upon the written request of the Developer, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Developer to set aside in a separate account assets for the meeting of obligations under the plan or program.

### **1.2.2.5 Buy American Act - Construction Materials Under Trade Agreements**

(a) Definitions. As used in this clause--

"Component" means an article, material, or supply incorporated directly into a construction material.

"Construction material" means an article, material, or supply brought to the construction site by the Developer or subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

"Cost of components" means--

(1) For components purchased by the Developer or subcontractor, the acquisition cost, including transportation costs to the place of incorporation into the construction material (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Developer or subcontractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

"Designated country" means any of the following countries: Aruba, Austria, Bangladesh, Belgium, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Canada, Cape Verde, Central African Republic, Chad, Comoros, Denmark, Djibouti, Equatorial Guinea, Finland, France, Gambia, Germany, Greece, Guinea, Guinea-Bissau, Haiti, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, Kiribati, Korea-Republic of, Lesotho, Liechtenstein, Luxembourg,

Malawi, Maldives, Mali, Mozambique, Nepal, Netherlands, Niger, Norway, Portugal, Rwanda, Sao Tome and Principe, Sierra Leone, Singapore, Somalia, Spain, Sweden, Switzerland, Tanzania U.R., Togo, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Yemen.

"Designated country construction material" means a construction material that--

(1) Is wholly the growth, product, or manufacture of a designated country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different construction material distinct from the materials from which it was transformed.

"Domestic construction material" means--

(1) An unmanufactured construction material mined or produced in the United States; or

(2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

"Foreign construction material" means a construction material other than a domestic construction material.

"North American Free Trade Agreement country" means Canada or Mexico.

"North American Free Trade Agreement country construction material" means a construction material that--

(1) Is wholly the growth, product, or manufacture of a North American Free Trade Agreement (NAFTA) country; or

(2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a NAFTA country into a new and different construction material distinct from the materials from which it was transformed.

"United States" means the 50 States, the District of Columbia, and outlying areas.

(b) Construction materials.

(1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) by providing a preference for domestic construction material. In addition, the Contracting Officer has determined that the Trade Agreements Act and the North American Free Trade Agreement (NAFTA) apply to this acquisition. Therefore, the Buy American Act restrictions are waived for designated country and NAFTA country construction materials.

(2) The Developer shall use only domestic, designated country, or NAFTA country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.

(3) The requirement in paragraph (b)(2) of this clause does not apply to the construction materials or components listed by the Government as follows: None.

(4) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(3) of this clause if the Government determines that--

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the restrictions of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent;

(ii) The application of the restriction of the Buy American Act to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(b) Request for determination of inapplicability of the Buy American Act.

(1)

(i) Any Developer request to use foreign construction material in accordance with paragraph (b)(4) of this clause shall include adequate information for Government evaluation of the request, including--

(a) A description of the foreign and domestic construction materials;

(b) Unit of measure;

(c) Quantity;

(d) Price;

(e) Time of delivery or availability;

(f) Location of the construction project;

(g) Name and address of the proposed supplier; and

(h) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Developer request for a determination submitted after contract award shall explain why the Developer could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Developer does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act applies and the Contracting Officer and the Developer negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(4)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act applies, use of foreign construction material is noncompliant with the Buy American Act.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Developer shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) *
<i>Item 1</i>			
Foreign construction material			

Domestic construction material			
<i>Item 2</i>			
Foreign construction material			
Domestic construction material			

[List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.]

[Include other applicable supporting information. ]

[\* Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).]

**1.2.2.6 Anti-Kickback Procedures**

(a) Definitions.

"Kickback," as used in this clause, means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided, directly or indirectly, to any prime Contractor, prime Contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a subcontract relating to a prime contract.

"Person," as used in this clause, means a corporation, partnership, business association of any kind, trust, joint-stock company, or individual.

"Prime contract," as used in this clause, means a contract or contractual action entered into by the United States for the purpose of obtaining supplies, materials, equipment, or services of any kind.

"Prime Contractor" as used in this clause, means a person who has entered into a prime contract with the United States.

"Prime Contractor employee," as used in this clause, means any officer, partner, employee, or agent of a prime Contractor.

"Subcontract," as used in this clause, means a contract or contractual action entered into by a prime Contractor or subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind under a prime contract.

"Subcontractor," as used in this clause,

(1) means any person, other than the prime Contractor, who offers to furnish or furnishes any supplies, materials, equipment, or services of any kind under a prime contract or a subcontract entered into in connection with such prime contract, and

(2) includes any person who offers to furnish or furnishes general supplies to the prime Contractor or a higher tier subcontractor.

"Subcontractor employee," as used in this clause, means any officer, partner, employee, or agent of a subcontractor.

(b) The Anti-Kickback Act of 1986 (41 U.S.C. 51-58) (the Act), prohibits any person from --

(1) Providing or attempting to provide or offering to provide any kickback;

(2) Soliciting, accepting, or attempting to accept any kickback; or

(3) Including, directly or indirectly, the amount of any kickback in the contract price charged by a prime Contractor to the United States or in the contract price charged by a subcontractor to a prime Contractor or higher tier subcontractor.

(c)

(1) The Prime Contractor shall have in place and follow reasonable procedures designed to prevent and detect possible violations described in paragraph (b) of this clause in its own operations and direct business relationships.

(2) When the Prime Contractor has reasonable grounds to believe that a violation described in paragraph (b) of this clause may have occurred, the Prime Contractor shall promptly report in writing the possible violation. Such reports shall be made to the inspector general of the contracting agency, the head of the contracting agency if the agency does not have an inspector general, or the Department of Justice.

(3) The Prime Contractor shall cooperate fully with any Federal agency investigating a possible violation described in paragraph (b) of this clause.

(4) The Contracting Officer may

(i) offset the amount of the kickback against any monies owed by the United States under the prime contract and/or

(ii) direct that the Prime Contractor withhold from sums owed a subcontractor under the prime contract the amount of the kickback. The Contracting Officer may order that monies withheld under subdivision (c)(4)(ii) of this clause be paid over to the Government unless the Government has already offset those monies under subdivision

(c)(4)(i) of this clause. In either case, the Prime Contractor shall notify the Contracting Officer when the monies are withheld.

(5) The Prime Contractor agrees to incorporate the substance of this clause, including subparagraph (c)(5) but excepting subparagraph (c)(1), in all subcontracts under this contract which exceed \$100,000.

### **1.2.2.7 Compliance with Copeland Act Requirements**

The Developer shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

### **1.2.3 Payrolls and Basic Records**

(a) Payrolls and basic records relating thereto shall be maintained by the Developer during the course of the work and preserved for a period of 3 years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(b) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under paragraph (d) of the clause entitled Davis-Bacon Act, that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(b) of the Davis-Bacon Act, the Developer shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Developers employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(b)(1) The Developer shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer. (The weekly payrolls may be accumulated to be submitted to the Contracting Officer on a monthly basis.) The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph (a) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the --

Superintendent of Documents  
U.S. Government Printing Office  
Washington, DC 20402

The Prime Developer is responsible for the submission of copies of payrolls by all subcontractors.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Developer or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify --

(i) That the payroll for the payroll period contains the information required to be maintained under paragraph (a) of this clause and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR Part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (b)(2) of this clause.

(4) The falsification of any of the certifications in this clause may subject the Developer or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(d) The Developer or subcontractor shall make the records required under paragraph (a) of this clause available for inspection, copying, or transcription by the Contracting Officer or authorized representatives of the Contracting Officer or the Department of Labor. The Developer or subcontractor shall permit the Contracting Officer or representatives of the Contracting Officer or the Department of Labor to interview employees during working hours on the job. If the Developer or subcontractor fails to submit required records or to make them available, the Contracting Officer may, after written notice to the Developer, take such action as may be necessary to cause the suspension of any further payment. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

#### **1.2.4 Apprentices and Trainees**

(a) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio

of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Developer as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Developer is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Developer's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Developer will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(b) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Developer will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(c) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

### **1.2.5 Disputes Concerning Labor Standards**

The United States Department of Labor has set forth in 29 CFR Parts 5, 6, and 7 procedures for resolving disputes concerning labor standards requirements. Such disputes shall be resolved in accordance with those procedures and not the Disputes clause of this contract. Disputes within the meaning of this clause include disputes between the Developer (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

### **1.2.6 Subcontracts (Labor Standards)**

(a) The Developer shall insert in any subcontracts the clauses entitled Davis-Bacon Act, Contract Work Hours and Safety Standards Act -- Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Withholding of Funds, Subcontracts (Labor Standards), Contract Termination -- Debarment, Disputes Concerning Labor Standards, Compliance with Davis-Bacon and Related Act Regulations, and Certification of Eligibility, and such other clauses as the Contracting Officer may, by appropriate instructions, require, and also a clause requiring subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with all the contract clauses cited in this paragraph.

(b)

(1) Within 14 days after award of the contract, the Developer shall deliver to the Contracting Officer a completed Statement and Acknowledgment Form (SF 1413) for each subcontract, including the subcontractor's signed and dated acknowledgment that the clauses set forth in paragraph (a) of this clause have been included in the subcontract.

(2) Within 14 days after the award of any subsequently awarded subcontract the Contractor shall deliver to the Contracting Officer an updated completed SF 1413 for such additional subcontract.

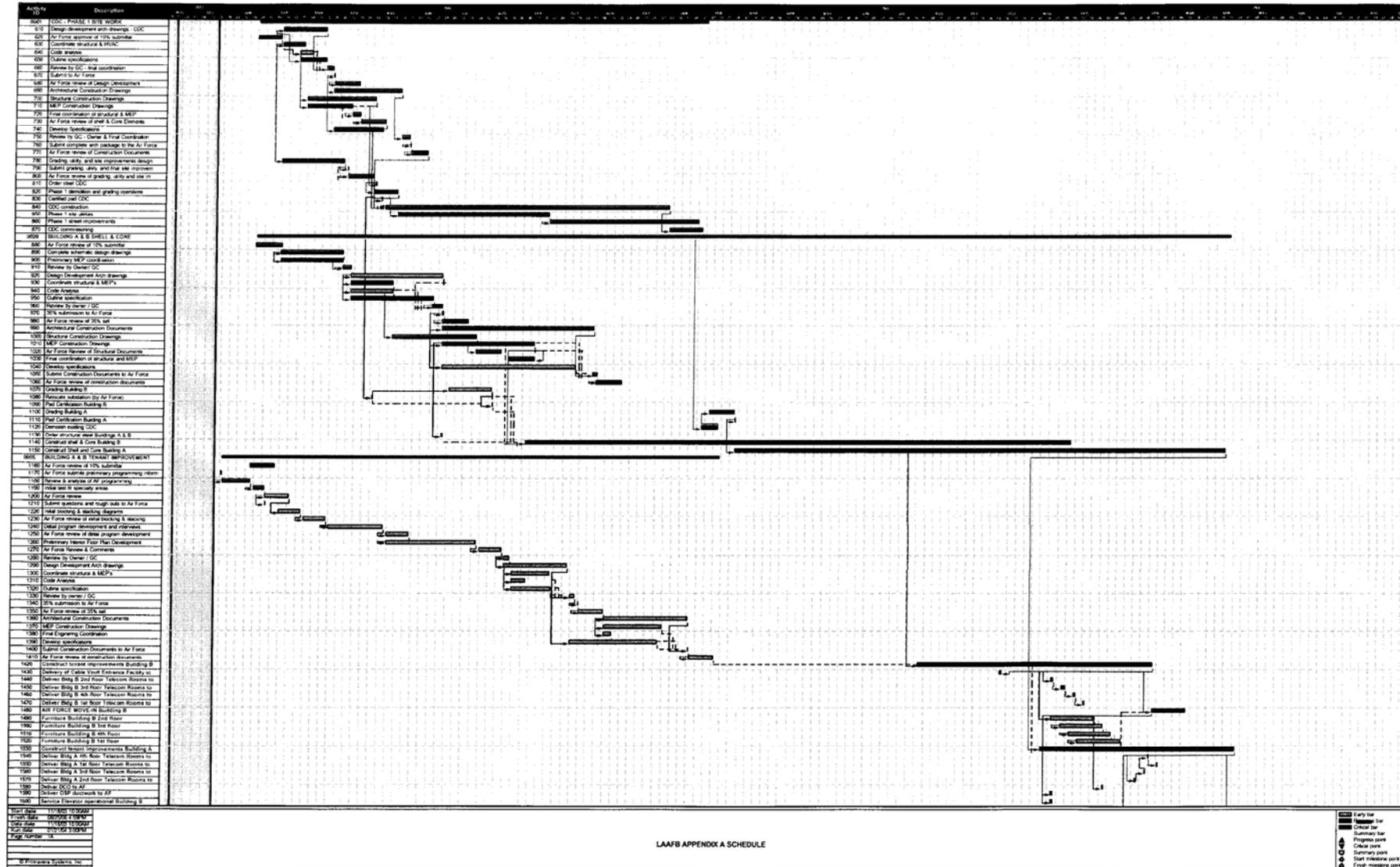
### **1.2.7 Compliance with Davis-Bacon and Related Act Regulations**

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are hereby incorporated by reference in this contract.

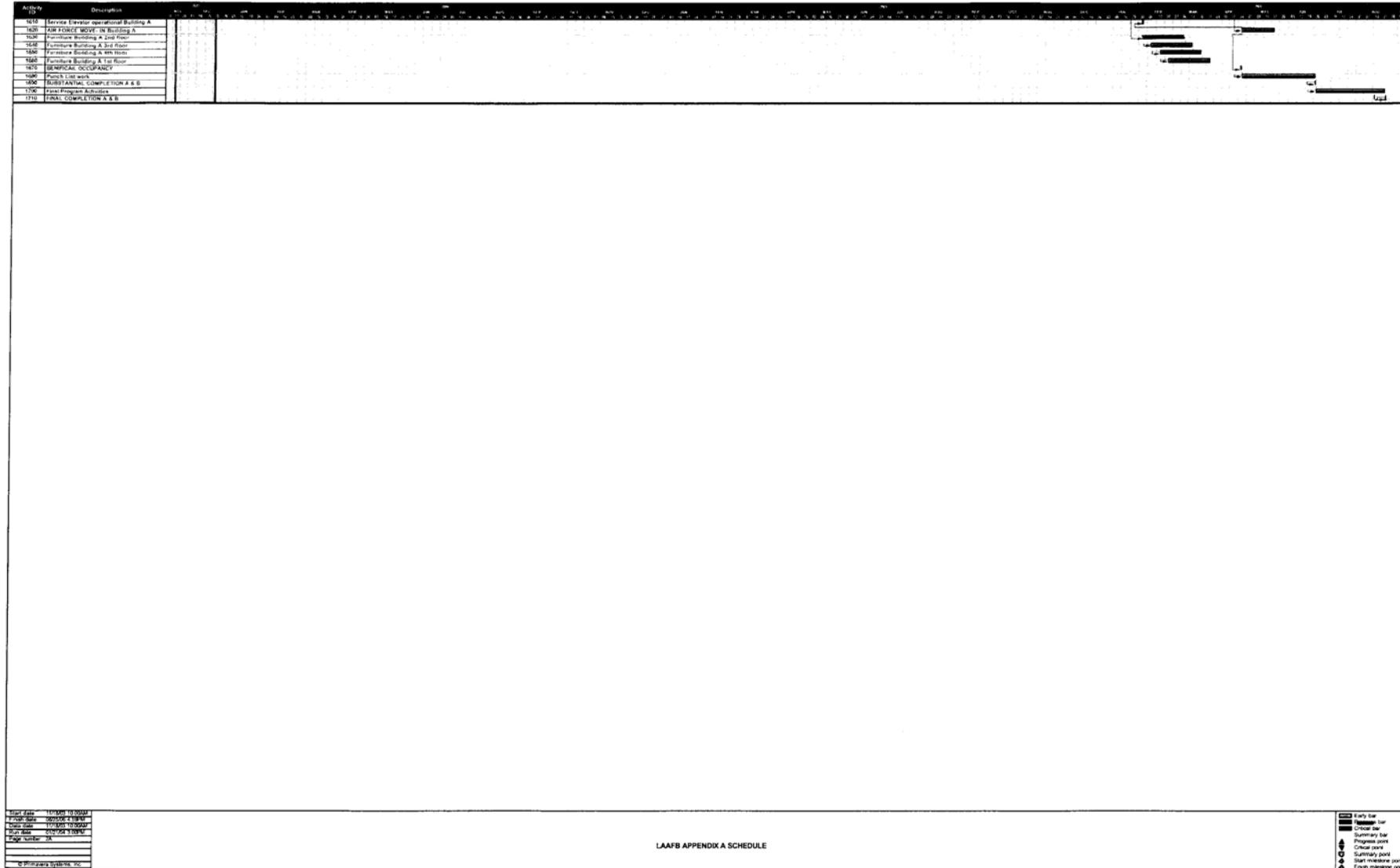
**EXHIBIT C**

**10% INTERIM DESIGN**

# EXHIBIT D SCHEDULE



LAAF APPENDIX A SCHEDULE



APPENDIX A

**Systems Acquisition Management and Support (SAMS)  
Complex Facility Requirements**

**And**

**Design Guide**

**Los Angeles Air Force Base**

**January 21, 2004**

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