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Cameron County Request for Design/Build Qualifications for Aircraft Hangar

Cameron County, intends to engage qualified firms to provide design-build services for the construction of a new 10 unit T-hangar and hangar access pavement at the Port Isabel-Cameron County Airport. This solicitation is being offered under the provisions of the Texas Local Government Code, Title 8, Subtitle C, Chapter 271, Subchapter H, (a copy of which is attached hereto as Appendix A.) All provisions of which must be complied with by both the Owner and the selected vendor.

1. GENERAL TERMS AND CONDITIONS OF THE REQUEST FOR QUALIFICATIONS AND INTEREST

1.1. **Four (4) copies** of the Form AVN-552 must be received no later than May 5, 2009 at 4:00 PM:

Mr. Pete Sepulveda Jr. County Administrator, Cameron County 1100 East Monroe Brownsville TX 78520

- 1.2. Mark outside of envelope with "RFQ # 09HGPTISB Hangar."
- 1.3. It is the sole responsibility of the offeror to ensure that his or her qualifications are completed on the correct form and received by Cameron County before the deadline indicated in Section 1.1. Qualifications received on forms other than the AVN-552 and after the announced time and date of receipt, by mail or otherwise, will be rejected and returned. However, nothing in this RFQ precludes the Owner from requesting additional information at any time during the procurement process.
- 1.4. Nothing herein is intended to exclude any responsible firm or in any way restrain or restrict competition. On the contrary, all responsible firms are encouraged to submit qualifications. Cameron County reserves the right to award in part or in whole or to reject any or all submissions.
- 1.5. Qualifications **MUST** be submitted on the Form AVN-552 and include the Offeror's signature certification to obtain the required bonds on page 1. All qualifications submitted on incorrect forms without such certification will be deemed non-responsive.
- 1.6. RFQ Process: In accordance with Texas Local Government Code, Section 271.119 (d), this will be a 2-phase process for the selection of a design-build firm. Offerors shall utilize the latest version of Form AVN-552, titled "Request for Qualifications Design Build Services". The form may be requested from TxDOT, Aviation Division, 125 E. 11th Street, Austin, Texas 78701-2483, phone number, 1-800-68-PILOT (74568). The form may be emailed by request or downloaded from the TxDOT web site at http://www.txdot.gov/business/projects/aviation.htm. The form may not be altered in any way. All printing must be in black on white paper, except for the optional illustration

pages. Offerors must carefully follow the instructions provided on each page of the form. Proposals may not exceed the number of pages in the proposal format. The proposal format consists of ten pages of data plus three optional illustration pages. Proposals shall be stapled but not bound in any other fashion. PROPOSALS WILL NOT BE ACCEPTED IN ANY OTHER FORMAT

- 1. Phase 1 Qualifications prepared using AVN-552 to be reviewed and offeror's ranked based on the selection procedure noted in 5.2.
- 2. Phase 2 Negotiations, beginning with the highest ranked offeror within 60 calendar days
- 1.7. In accordance with the Texas Local Government Code, Phase 1 of this process is a qualification based selection process and no costing or other financial information is to be submitted in response to this RFQ during Phase 1.

2. PROJECT DESCRIPTION AND BACKGROUND

- 2.1. Cameron County seeks qualifications from qualified firms to provide design-build services for the design and construction of a new 10 unit aircraft "T" hangar, to be located at the Port Isabel-Cameron County Airport. Specifications are included in Appendix B.
 - 1. Exterior dimensions are approximately 230 feet by 51 feet. An additional concrete perimeter strip will also be required as described in Appendix B, Section 1.2.
 - 2. 10 "T" bays for small private aircraft.
 - 3. "T" bays will have bi-fold doors with varying opening widths as described in Appendix B Section 1.2.
 - 4. "T" bays will be separated from other hangar bays by full height walls.
 - 5. Total size of the proposed hangar is approximately 11,730 square feet, as shown in Appendix C.
 - 6. Work includes all incidental paving needed to tie the hangars to the apron and taxiway. All materials used will conform to the 2004 publication of the Texas Department of Transportations Standard Specifications For Construction And Maintenance Of Highways, Streets and, Bridges or the appropriate specification from Federal Aviation Administration Advisory Circular 150/5370-10C. All materials, to include any Hot Mix Asphalt Concrete (HMAC) or Concrete batch design, will be submitted to the TxDOT Aviation Division for approval prior to use or installation.
- 2.2. The scope of services for the Aircraft Hangar is intended to provide a complete and useable facility for Cameron County which can be put into operation immediately after acceptance by the Owner.

2.3. The scope of services includes all aspects of design and construction, including but not limited to the following:

Project Orientation & Program

- 1. The selected design/builder will be required to furnish a Performance Bond and Payment Bond, each in the full amount of the construction costs, executed by a surety company or surety companies authorized to execute surety bonds under and in accordance with the laws of the State of Texas.
- 2. The selected design/builder will be required to provide a listing of both automobile and personal liability, and builder's risk insurance coverage currently in force, along with a copy of a Certificate of Insurance as verification of that coverage.
- 3. Meet with local government and Airport officials to gain a detailed understanding of the project requirements and general parameters under which the project will be designed and constructed.
- 4. Based on discussions in the initial meeting(s), formulate schematic designs for review and approval.
- 5. Prepare project budget and cash flow projections.
- 6. Develop project schedule.

Design Development and Construction Documents

- 1. Generate construction documents.
- 2. Coordinate construction plans with the Owner
- 3. Obtain required construction permits.

Construction/Construction Administration

- 1. Complete construction.
- 2. Administer weekly progress meetings and prepare and distribute minutes of the meetings.
- 3. Prepare and submit pay applications on a monthly basis.
- 4. Schedule any special inspections as required by City/County ordinances.
- 5. Arrange for required City/County code inspections.
- 6. Perform testing of all building systems.

7. Compile, review and submit project closeout documentation, including as-built drawings.

3. FEE STRUCTURE AND BUDGET

3.1. It is anticipated that the final contract will be based on a Lump Sum Fee. The budget for this project is \$600,000.

4. OWNER RESPONSIBILITIES

4.1. Provide to the successful offeror all information in possession of the Owner which relates to the City's/County requirements for the project or which is relevant to the project.

5. SPECIFIC TERMS AND CONDITIONS OF THE REQUEST FOR QUALIFICATIONS AND INTEREST

5.1. EVALUATION CRITERIA

- 5.1.1. The following criteria will be used in the evaluation of qualifications for development of the shortlist and/or selection of the most qualified firm/team for hangar design-build. Offerors are required to address each evaluation criterion in the order listed and to be specific in presenting in their qualifications.
 - ❖ Composition of design-build team members (20 points). This section should clearly state the key participants comprising the design-build team, indicate any contractual arrangements between-among the members, and provide their roles within the design-build team. Experience with similar airport projects, especially pervious design/build experience, and availability of team members should be provided. Additionally provided educational backgrounds, work experience, areas of expertise, and specific experience with design/build and/or construction of similar kinds of facilities and prior experience of the team working together.
 - ❖ Recent experience of the project team with comparable projects within the last five years (20 points). Prior experience must include contact reference information for a minimum of three (3) previously completed airport hangar projects, and the year in which each was constructed. Firms without previous experience building at least three hangars will not meet qualifications and cannot be considered.
 - ❖ Firm's technical approach to the project. (40 points). Provide evidence of the firm's/team's understanding of the project and any unique architectural or engineering aspects associated with this proposed project. Describe specific problems and considerations to be addressed. Detail how the process of design/build would be managed and would be handled. This section, including the illustration pages, may include conceptual drawings of the proposed site plan and proposed facility, but they are not required. Address project oversight for the entire process, design through construction, and coordination with the airport sponsor. Information on suppliers and /or materials should be

addressed in the proposal. Describe how changes, modifications and corrections would be addressed.

❖ Project Schedule. (20 points). Provide in weeks the proposed schedule from the notice to proceed through construction of the facility. This schedule should not include any review time from the airport sponsor. It should address the direct time that the design/build team needs to be able to design and build the facility, ready for occupancy.

5.2 SELECTION PROCEDURE

5.2.1 An evaluation team composed of Owner staff will review and evaluate all responses to the RFQ and rank order them in accordance with the criteria established in Section 5.1.1, above.

The evaluation team will then engage in individual discussions with up to a maximum of three offerors based upon the selection criteria for Phase 1. Each of the offerors deemed to be best qualified will be requested to make a formal presentation to the evaluation team. Repetitive informal interviews will be permissible. Such offerors will be encouraged to elaborate on their qualifications and performance data or staff expertise pertinent to the proposed project, as well as alternative concepts. At the discussion stage, the evaluation team will discuss non-binding estimates of total project costs. At the conclusion of discussion, on the basis of evaluation factors published in the Request for Qualifications and all information developed in the selection process to this point, the evaluation team will select in order of preference, two or more offerors whose professional qualifications and proposed services are deemed most meritorious.

Negotiations will then be conducted, beginning with the offeror ranked first. Every effort by the top ranked offeror must be made to complete negotiations within a reasonable amount of time. If the offeror ranked first does not show adequate effort to complete negotiations within 60 calendar days of notification by the Owner to begin negotiations, the Owner may decide to disqualify the offeror ranked first and begin negotiations with the offeror ranked second. If a contract satisfactory and advantageous to the Owner can be negotiated at a price considered fair and reasonable, a recommendation will be made to the Governing Body to award a design/build contract to that offeror. Otherwise, negotiations with the offeror ranked first will be formally terminated and negotiations conducted with the offeror ranked second, and so on until such a contract can be negotiated at a fair and reasonable price.

Should the evaluation team determine in writing and in its sole discretion that only one offeror is fully qualified, or that one offeror is clearly more highly qualified and suitable than the others under consideration, a contract may be negotiated and awarded to that offeror.

5.3 REFERENCES AND EVIDENCE OF FINANCIAL RESPONSIBILITY

- 5.3.1 The Qualifications must include references and contact information for a minimum of three (3) previously completed airport hangar projects, and the year in which each was constructed. References should be included on page six of the Form AVN 552. References of the top ranked shortlisted offerors will be contacted. The Owner reserves the right to contact references other than, and/or in addition to, those furnished by an offeror.
- 5.3.2 Each offeror shall furnish the Owner satisfactory evidence of the Offeror's financial responsibility. Such evidence shall consist of a confidential statement or report of the Offeror's financial resources and liabilities as of the last calendar year or the Offeror's last fiscal year. Such statements or reports shall be prepared by a public accountant. At the time of submitting such financial statements or reports, the Offeror shall further certify whether the Offeror's financial responsibility is approximately the same as stated or reported by the public accountant.

5.4 PRE-PROPOSAL MEETING

5.4.1 An optional pre-proposal meeting will be held at the Port Isabel/Cameron County Airport on April 14, 2009 at 10:00 AM.

5.5 BASIS FOR AWARD

5.5.1 Information and/or factors gathered during interviews, negotiations and any reference checks, in addition to the evaluation criteria stated in the RFQ, and any other information or factors deemed relevant by the Owner, will be utilized in the final award.

5.6 FURTHER INFORMATION

5.6.1 Questions which may arise as a result of this Request for Qualification should be directed to Mr. Pete Sepulveda, at 956-982-5414. Please reference Cameron County RFQ # 09HGPTISB.

SIGNATURE SHEET

My signature certifies that the proposal as submitted complies with all Terms and Conditions as set forth in the Port Isabel Cameron County RFQ # 09HGPTISB.

My signature also certifies that the accompanying proposal is not the result of, or affected by, any unlawful act of collusion with another person or company engaged in the same line of business or commerce, or any act of fraud punishable under Texas statutes.

My signature also certifies that this firm has no business or personal relationships with any other companies or persons that could be considered as a conflict of interest or potential conflict of interest to Cameron County, and that there are no principals, officers, agents, employees, or representatives of this firm that have any business or personal relationships with any other companies or persons that could be considered as a conflict of interest or a potential conflict of interest to Cameron County, pertaining to any and all work or services to be performed as a result of this request and any resulting contract with Cameron County.

My signature also certifies that architects and engineers on the team were selected based on demonstrated competence and qualifications in the manner provided by Section 2254.004 of the Texas Government Code. (See section 271.1199d)(1).

I hereby certify that I am authorized to sign as a Representative for the Firm:

Complete legal name of firm:

Address:

Fed ID No.:

Signature:

Name (Type/Print):

Title:

Telephone:

Fax No.:

To receive consideration for this award, this signature sheet must be returned to Cameron County as a part of your response to the RFQ

APPENDIX A

APPENDIX A – EXTRACTS FROM THE TEXAS LOCAL GOVERNMENT CODE

- § 271.111. DEFINITIONS. In this subchapter:
- (1) "Architect" means an individual registered as an architect under Chapter 1051, Occupations Code.
- (2) "Contractor" in the context of a contract for the construction, rehabilitation, alteration, or repair of a facility means a sole proprietorship, partnership, corporation, or other legal entity that assumes the risk for constructing, rehabilitating, altering, or repairing all or part of the facility at the contracted price.
- (3) "Design-build contract" means a single contract with a design-build firm for the design and construction of a facility.
- (4) "Design-build firm" means a partnership, corporation, or other legal entity or team that includes an engineer or architect and builder qualified to engage in building construction in Texas.
- (5) "Design criteria package" means a set of documents that provides sufficient information to permit a design-build firm to prepare a response to a governmental entity's request for qualifications and any additional information requested, including criteria for selection. The design criteria package must specify criteria the governmental entity considers necessary to describe the project and may include, as appropriate, the legal description of the site, survey information concerning the site, interior space requirements, special material requirements, material quality standards, conceptual criteria for the project, special equipment requirements, cost or budget estimates, time schedules, quality assurance and quality control requirements, site development requirements, applicable codes and ordinances, provisions for utilities, parking requirements, or any other requirement, as applicable.
- (6) "Engineer" means an individual licensed as an engineer under Chapter 1001, Occupations Code.
- (7) "Facility" means buildings the design and construction of which are governed by accepted building codes. The term does not include:
- (A) highways, roads, streets, bridges, utilities, water supply projects, water plants, wastewater plants, water and wastewater distribution or conveyance facilities, wharves, docks, airport runways and taxiways, drainage projects, or related types of projects associated with civil engineering construction; or
- (B) buildings or structures that are incidental to projects that are primarily civil engineering construction projects.
- (8) "Fee" in the context of a contract for the construction, rehabilitation, alteration, or repair of a facility means the payment a construction manager receives for its overhead and profit in performing its services.
- (9) "General conditions" in the context of a contract for the construction, rehabilitation, alteration, or repair of a facility means on-site management, administrative personnel, insurance, bonds, equipment, utilities, and incidental work,

including minor field labor and materials.

(10) "Governmental entity" means a municipality, county, river authority, or defense base development authority established under Chapter 378 as added by Chapter 1221, Acts of the 76th Legislature, Regular Session, 1999.

Added by Acts 2001, 77th Leg., ch. 1409, § 5, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 877, § 1, eff. Sept. 1, 2003; Acts 2003, 78th Leg., ch. 1276, § 14A.791, eff. Sept. 1, 2003.

- § 271.112. APPLICABILITY; OTHER LAW. (a) Any provision in the charter of a home-rule municipality or regulation, if any, of a county, river authority, or defense base development authority that requires the use of competitive bidding or competitive sealed proposals or that prescribes procurement procedures and that is in conflict with this subchapter controls over this subchapter unless the governing body of the governmental entity elects to have this subchapter supersede the charter or regulation.
- (b) The purchasing requirements of Section 361.426, Health and Safety Code, apply to purchases by a governmental entity made under this subchapter.
- (c) Except as provided by this section, to the extent of any conflict, this subchapter prevails over any other law relating to the purchasing of goods and services except a law relating to contracting with historically underutilized businesses.
- (d) For a contract entered into by a municipality, river authority, or defense base development authority under any of the methods provided by this subchapter, the municipality, river authority, or defense base development authority shall publish notice of the time and place the bids or proposals, or the responses to a request for qualifications, will be received and opened. The notice must be published in a newspaper of general circulation in the county in which the defense base development authority's or municipality's central administrative office is located or the county in which the greatest amount of the river authority's territory is located once each week for at least two weeks before the deadline for receiving bids, proposals, or responses. If there is not a newspaper of general circulation in that county, the notice shall be published in a newspaper of general circulation in the county nearest the county seat of the county in which the defense base development authority's or municipality's central administrative office is located or the county in which the greatest amount of the river authority's territory is located. In a two-step procurement process, the time and place the second step bids, proposals, or responses will be received are not required to be published separately.
- (e) For a contract entered into by a county under any of the methods provided by this subchapter, the county shall publish notice of the time and place the bids or proposals, or the responses to a request for qualifications, will be received and opened. The notice must be published in a newspaper of general circulation in the county once each week for at least two weeks before the deadline for receiving bids, proposals, or responses. If there is not a newspaper of general circulation in the county, the notice shall be:
 - (1) posted at the courthouse door of the county; and
- (2) published in a newspaper of general circulation in the nearest county.

(f) A contract entered into or an arrangement made in violation of this subchapter is contrary to public policy and is void. A court may enjoin performance of a contract made in violation of this subchapter. A county attorney, a district attorney, a criminal district attorney, a resident of a county that enters into a contract under this subchapter or of a county in which a municipality or a river authority that enters into a contract under this subchapter is located, or any interested party may bring an action for an injunction. A party who prevails in an action brought under this subsection is entitled to reasonable attorney's fees as approved by the court.

Added by Acts 2001, 77th Leg., ch. 1409, § 5, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 877, § 2, eff. Sept. 1, 2003.

- § 271.113. PROCUREMENT PROCEDURES. (a) In entering into a contract for the construction of a facility, a governmental entity may use any of the following methods that provides the best value for the governmental entity:
 - (1) competitive bidding;
 - (2) competitive sealed proposals for construction

services;

(3) a design-build contract;

- (4) a contract to construct, rehabilitate, alter, or repair facilities that involves using a construction manager; or
- (5) a job order contract for the minor repair, rehabilitation, or alteration of a facility.
- (b) Except as provided by this subchapter, in determining to whom to award a contract, the governmental entity may consider:
 - (1) the purchase price;
- (2) the reputation of the vendor and of the vendor's goods or services;
 - (3) the quality of the vendor's goods or services;
- (4) the extent to which the goods or services meet the governmental entity's needs;
- (5) the vendor's past relationship with the governmental entity;
- (6) the impact on the ability of the governmental entity to comply with rules relating to historically underutilized businesses;
- (7) the total long-term cost to the governmental entity to acquire the vendor's goods or services; and
- $\mbox{(8)}$ any other relevant factor specifically listed in the request for bids or proposals.

Added by Acts 2001, 77th Leg., ch. 1409, § 5, eff. Sept. 1, 2001.

- § 271.114. EVALUATION OF BIDS AND PROPOSALS FOR CONSTRUCTION SERVICES. (a) The governing body of a governmental entity that is considering a construction contract using a method specified by Section 271.113(a) other than competitive bidding must, before advertising, determine which method provides the best value for the governmental entity. The governing body may, as appropriate, delegate its authority under this section to a designated representative.
- (b) The governmental entity shall base its selection among offerors on criteria authorized to be used under Section

- 271.113(b). The governmental entity shall publish in the request for bids, proposals, or qualifications all the criteria that will be used to evaluate the offerors and the relative weights given to the criteria.
- (c) The governmental entity shall document the basis of its selection and shall make the evaluations public not later than the seventh day after the date the contract is awarded.

Added by Acts 2001, 77th Leg., ch. 1409, § 5, eff. Sept. 1, 2001.

- § 271.119. DESIGN-BUILD CONTRACTS FOR FACILITIES. (a) A governmental entity may use the design-build method for the construction, rehabilitation, alteration, or repair of a facility. In using that method and in entering into a contract for the services of a design-build firm, the contracting governmental entity and the design-build firm shall follow the procedures provided by this section.
- (b) The governmental entity shall select or designate an engineer or architect independent of the design-build firm to act as its representative for the duration of the work on the facility. If the governmental entity's engineer or architect is not a full-time employee of the governmental entity, the governmental entity shall select the engineer or architect on the basis of demonstrated competence and qualifications as provided by Section 2254.004, Government Code.
- (c) The governmental entity shall prepare a request for qualifications that includes general information on the project site, project scope, budget, special systems, selection criteria, and other information that may assist potential design-build firms in submitting proposals for the project. The governmental entity shall also prepare a design criteria package that includes more detailed information on the project. If the preparation of the design criteria package requires engineering or architectural services that constitute the practice of engineering within the meaning of Chapter 1001, Occupations Code, or the practice of architecture within the meaning of Chapter 1051, Occupations Code, those services shall be provided in accordance with the applicable law.
- (d) The governmental entity shall evaluate statements of qualifications and select a design-build firm in two phases:
- (1) In phase one, the governmental entity shall prepare a request for qualifications and evaluate each offeror's experience, technical competence, and capability to perform, the past performance of the offeror's team and members of the team, and other appropriate factors submitted by the team or firm in response to the request for qualifications, except that cost-related or price-related evaluation factors are not permitted. Each offeror must certify to the governmental entity that each engineer or architect that is a member of its team was selected based on demonstrated competence and qualifications in the manner provided by Section 2254.004, Government Code. The governmental entity shall qualify a maximum of five offerors to submit additional information and, if the governmental entity chooses, to interview for final selection.
- (2) In phase two, the governmental entity shall evaluate the information submitted by the offerors on the basis of the selection criteria stated in the request for qualifications and the results of an interview. The governmental entity may request additional information regarding demonstrated competence and

qualifications, considerations of the safety and long-term durability of the project, the feasibility of implementing the project as proposed, the ability of the offeror to meet schedules, costing methodology, or other factors as appropriate. The governmental entity may not require offerors to submit detailed engineering or architectural designs as part of the proposal. The governmental entity shall rank each proposal submitted on the basis of the criteria set forth in the request for qualifications. The governmental entity shall select the design-build firm that submits the proposal offering the best value for the governmental entity on the basis of the published selection criteria and on its ranking evaluations. The governmental entity shall first attempt to negotiate a contract with the selected offeror. If the governmental entity is unable to negotiate a satisfactory contract with the selected offeror, the governmental entity shall, formally and in writing, end negotiations with that offeror and proceed to negotiate with the next offeror in the order of the selection ranking until a contract is reached or negotiations with all ranked offerors end.

- (e) Following selection of a design-build firm under Subsection (d), that firm's engineers or architects shall complete the design, submitting all design elements for review and determination of scope compliance to the governmental entity or the governmental entity's engineer or architect before or concurrently with construction.
- (f) An engineer shall have responsibility for compliance with the engineering design requirements and all other applicable requirements of Chapter 1001, Occupations Code. An architect shall have responsibility for compliance with the requirements of Chapter 1051, Occupations Code.
- (g) The governmental entity shall provide or contract for, independently of the design-build firm, the inspection services, the testing of construction materials engineering, and the verification testing services necessary for acceptance of the facility by the governmental entity. The governmental entity shall select those services for which it contracts in accordance with Section 2254.004, Government Code.
- (h) The design-build firm shall supply a signed and sealed set of construction documents for the project to the governmental entity at the conclusion of construction.
- (i) A payment or performance bond is not required for, and may not provide coverage for, the portion of a design-build contract under this section that includes design services only. If a fixed contract amount or guaranteed maximum price has not been determined at the time a design-build contract is awarded, the penal sums of the performance and payment bonds delivered to the governmental entity must each be in an amount equal to the project budget, as specified in the design criteria package. The design-build firm shall deliver the bonds not later than the 10th day after the date the design-build firm executes the contract unless the design-build firm furnishes a bid bond or other financial security acceptable to the governmental entity to ensure that the design-build firm will furnish the required performance and payment bonds when a guaranteed maximum price is established.

Added by Acts 2001, 77th Leg., ch. 1409, § 5, eff. Sept. 1, 2001. Amended by Acts 2003, 78th Leg., ch. 1276, § 14A.795, eff. Sept. 1, 2003.

APPENDIX B

APPENDIX B

Hangar Metal Building System and Foundation

PART 1 GENERAL:

1.1 WORK INCLUDED:

This item shall consist of providing all labor, tools, equipment and materials for furnishing, installation, and erection of aircraft hangar(s) on site as indicated on drawings. The items of work include, but are not limited to, the following: design of hangar foundation(s), excavation as necessary for construction of hangar foundation(s), purchase and erection of pre-fabricated metal hangar(s) including doors and hardware, purchase and installation of electrical devices, connection of all electrical utilities, and other accessories and utility connections as shown and indicated on plans.

Construction of a new pre-engineered metal building(s) and accessories for a 10-unit T-Hangar. Metal building(s) to have gabled roof and steel frame type construction, and is to be a completely integrated system according to specified dimensions and as shown on plans.

Unless otherwise specified within this section, all aspects of the building system including design, details, materials, fabrication, quality criteria, tolerances, marking and identification, methods and procedures are governed by the building system manufacturer's standards.

1.2 BUILDING DESCRIPTION:

A Hangar sizes shall be as defined below:

Number of Units	10 Unit
Building Length	230'0"
Building Width	51'0"
Building Eave Height	16'6"

Note: Add 1'1" to each building dimension for out-to-out of concrete

Unit Dimensions:

Clear Opening Doors (Four) 43'6" x 14'0" (One) 41'6" x 14'0" (Five) 39'6" x 14'0" Wing Depth 18'0"

Wing Depth 18'0" Tail Bay Depth 15'0"

Tail Bay Width varies according to door width

Overall Unit Depth 33'0"

It is understood that the dimensions above may vary slightly, depending on the hangar manufacturer.

- B. Width shall be as measured from center line to center line of endwall columns.
- C. Length shall be as measured from center line to center line of endwall columns.
- D. Eave height shall be as measured from the top of the eave purlin or door truss to the bottom of column base plate.
- E. Bi-fold hangar door size shall be the clear opening.
- F. Primary structural framing shall be main load carrying structural members. They shall include door trusses, rafters, interior columns and exterior columns.
- G. Roof Slope: min. 1:12, Provide 12" overhang for bi-fold doors to shed water away from hangar doors.

1.3 QUALITY ASSURANCE:

A. Codes and Standards:

- 1. Use following where applicable in structural design:
 - a. AWS "Code of Welding in Building Construction" and "Specification for Welding Sheet Steel in Structures", latest edition.
 - b. MBMA "Recommended Design Practices Manual", latest edition and "Low-Rise Building Systems Manual", latest edition.
 - c. AISI "Specifications for the Design of Cold Formed Steel Structural Members", latest edition.
 - d. AISC "Steel Construction Manual" and "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings", latest edition (Manufacturer must be certified by AISC).
 - e. AAMA "Aluminum Construction Manual", latest edition.
 - f. SJI "Standard Specifications, Load Tables and Weight Tables", latest edition.

- g. AISC "Specifications for Structural Joints using ASTM A-325 or ASTM A-490 Bolts, latest edition.
- h. AISC "Code of Standard Practice for Steel Buildings and Bridges", latest edition.
- i. SDI "Steel Roof Deck Design Manual", latest edition.
- j. IBC "International Building Code", latest edition.
- 2. Use following where applicable in other phases of design:
 - a. Building Code and Regulations of other governing authorities having jurisdiction at project site.
 - b. Structural Steel Painting Council (SSPC) Standards.
 - c. Roofing system rating UL Classification 90.
 - d. American Society for Testing and Materials (ASTM) Standards.
 - e. NFPA 409 as applicable to authority having jurisdiction.
 - f. NEC "National Electrical Code 2002", as amended.

B. Design Loads:

- 1. Basic Design Loads: To include live, wind, and earthquake (if applicable), in addition to dead loads and including loading imposed by mechanical units. Consider all other design loads, whether they are of static, dynamic, or kinetic nature, as auxiliary loads. Design must conform to the minimum requirements of the IBC, latest edition. Vertical live loads and wind loads with doors closed shall be as prescribed by the IBC, latest edition.
- 2. Tributary reductions as allowed by IBC, latest edition
- 3. Crane Loads: No crane loads are required.
- 4. Horizontal deflections shall be limited to "L"/180 under full wind load, or as required by hangar door manufacturer's requirements for operation.

1.4 SUBMITTALS:

A. General: The Design-Build firm shall provide Cameron County with four (4) copies of all submittal information required under this item.

B. Shop Drawings and Calculations:

- 1. Within six weeks of award of bid, the Contractor shall furnish Engineer with completed erection drawings and calculations for approval.
 - a. Design Calculations and Erection Drawings: Prepared by, or under direct supervision of Professional Engineer licensed to practice in the State of Texas with all drawings and calculations bearing this seal.
 - b. Show each type structural building frame required and their locations within structure; details of anchor bolt settings; sidewall, endwall, and roof framing; diagonal bracing and location within structure; roof insulation and types; longitudinal and transverse cross sections; details of curbs, roof jacks, and items penetrating roof; canopy framing and details; trim, liner panels, wall and roof coverings, and all accessory items; materials; finishes; construction and installation details, and other pertinent information required for proper and complete installation.
 - c. All shop drawings shall be approved by Engineer before purchase or start of fabrication.

C. Foundation Design Plan:

- 1. Within four weeks of bid award, the Contractor shall furnish Engineer with completed foundation design, including all details for each specific hangar, for approval. The foundation plan shall be signed and sealed by a Professional Engineer licensed to practice in the State of Texas.
- 2. T-Hangar foundation(s) to be a stiffened slab-on-grade design based on the "Design of Slab-On-Ground Foundations" report TF 700-R-03 published by the Wire Reinforcement Institute, Inc. according to applicable design criteria. Bearing material to be structural fill to a minimum depth of 6 inches below the deepest grade beam. Allowable bearing under continuous footings or grade beams is assumed to be 2,000 psf. Floor slab shall not be less than five inches (5") thickness. If alternate foundation design is proposed, plans must be submitted for approval by Engineer a minimum of 10 days before bid opening.

- 3. The contractor shall coordinate all dimensions and foundation details with the metal building supplier, subcontractors, and any other affected parties to assure a complete, sound and finished project. Contractor shall also coordinate with any plumbing and/or electrical plans to provide all necessary penetrations to hangar foundation.
- 4. Engineer/Surveyor will check concrete forms for finished floor elevation of the foundation before concrete is poured. Additional elevation verification will be at contractor's expense.
- 5. Note required concrete perimeter strip per part 3.A of this appendix.
- D. Electrical: Submit electrical service calculations and one line diagram with panel schedule to the Engineer. All electrical materials and equipment shall be new and listed by a nationally recognized testing laboratory, such as UL. Electrical drawings shall be sealed by a Professional Electrical Engineer licensed to practice in the State of Texas.

E. Material and Color Samples:

- 1. For each specific material sample requested by Engineer, submit in size, form, and number as directed.
- 2. Submit duplicate color sample sets showing full color range available, for selection purposes. The Sponsor will select the roof, wall panel, and trim colors.
- F. Product Data: Two (2) copies of manufacturer's specifications, and descriptive literature.
- G. Certification: Two (2) copies of written certification prepared and signed and sealed by a Professional Engineer licensed to practice in the State of Texas attesting that building design meets specified loading requirements, requirements of codes and authorities having jurisdiction at project site, and other requirements as specified.
- H. Manufacturer's certification for all steel, including origin to comply with "Buy American-Steel and Manufactured Products" grant assurance.

1.5 PRODUCT HANDLING:

- A. Deliver and store pre-fabricated components, sheets, panels and other manufactured items so that they will not be damaged or deformed. Any damaged or deformed building materials shall be replaced by the Contractor for no additional cost or project time.
- B. Stack materials on platforms or pallets, covered with tarpaulins or other approved weathertight ventilated covering
- C. Store metal sheets and panels so water accumulation will drain freely. Do not store sheets and panels in contact with other materials that might cause staining.
- D. Store materials to be readily accessible, with factory makings visible. Contractor shall be responsible for the stored materials until building systems can be erected. Contractor may elect to store materials in bonded warehouse, but at no additional cost.
- E. Include installation and maintenance instructions.
- F. No payments shall be made to the Contractor for deposits or down payments for pre-fabricated buildings, components, or equipment. Payment will be made for materials that are delivered and stored satisfactorily on the project site in accordance with these specifications.

1.6 WARRANTIES:

			Panel
<u>Item</u>	Workmanship	Materials	Finish
Panel Rib Roof	1 year	3 years	20 years
Panel Rib Walls	1 year	3 years	20 years
Materials, Components & Access.	1 year	3 years	20 years

PART 2 PRODUCTS AND FABRICATION

2.1 STRUCTURAL STEEL

A. Materials:

- Structural steel shall conform to the following ASTM designations:
 ASTM A36 Structural steel angles and wide flange sections
 ASTM A572 GR 50 Structural steel plate
 ASTM A500 GR B All tubular sections
 ASTM A1003 GR 50 Cold-Formed steel sections
- 2. High Strength Bolts, Nuts and Washers; ASTM A325, or equivalent unless otherwise noted on plans; size required by metal building system manufacturer.
- 3. Prime Coat: Primer shall meet or exceed the end performance requirements of Federal Specification TT-P-636
- B. Rafters shall be steel wide flange beams "W" shaped ASTM A36 and shall be pre-punched for purlin connections, door truss, and interior column connections. Rafters shall be complete with factory welded ridge splice plates, and designed to support specified loads.
 - C. Door truss shall span width of bi-fold hangar door opening and shall be shipped full length for ease of construction. Door truss design shall be integral with door design. Door truss shall be factory welded with chords 4" x 4" x 1/8" minimum square structural welded steel tube ASTM A500 GR.B. and 3" x 1" x 1/8" minimum diagonal webbing. Door truss shall be pre- punched for column connection and bi-fold door hinges pre-located on upper door truss chord.
- D. Door columns shall be manufactured of steel wide flange beams "W"shapes ASTM A36 and shall be W6 x 15 pounds per foot minimum with pre-welded base plate and door truss saddles.
- E. Interior column shall be square structural welded steel tube ASTM A500 with prewelded base plates and girt clips.
- F. Secondary framing shall be the structural members which carry the loads to the primary framing systems; and shall include the purlins, girts, wind bracing and miscellaneous structural members.

- G. Purlins shall be nominal 8" deep "Z" shaped members; and shall be manufactured of 16, 14, or 12 gauge steel designed for specified loads, and shall be fabricated of material based on the requirements of ASTM A570 or ASTM A572 as applicable.
- H. Exterior wall girts shall be fabricated from 4" square structural weld steel tube or rolling formed cee sections of ASTM 570 or ASTM A572 as applicable.
- I. Interior partition girt shall be fabricated from 4" x 16 ga. red oxide steel "CEE" sections, when specified.
- J. Provide wind bracing, rafter bracing, sheeting angles where required.
- K. Structural field connections shall be bolted (unless otherwise noted). All primary bolted connections, as shown on manufacturer's drawing, shall be furnished with high strength bolts conforming to the physical specifications of ASTM A-325 or shall be Grade 5. All Grade 5 bolts shall be zinc plated.
- L. All structural members shall be shop primed red oxide.

2.2 FABRICATION:

- 1. Primary Framing: Frames of shop-welded steel plate columns and rafters, both tapered and uniform depth sections as required by drawings, complete with all necessary stiffeners, connections plates and holes for field bolted assembly.
 - a. Steel framing shall be factory punched for assembly by bolting; sidewall framing members shall be pre-punched to accurate dimensions.
 - b. Welding shall be done in accordance with the American Welding Society Code for building construction.
- 1. Secondary Framing: (Purlin, Girts, Struts, Flange Braces, Base Angles, Base Trim Angles), per ASTM A572 and/or ASTM A36 as applicable:
 - a. Clean secondary framing components to be free from oil, dirt, loose scale and foreign matter and apply one (1) coat of primer.

2.2 ROOFING AND SIDING:

A. Exterior Wall and Hangar Door Panels:

- 1. Minimum 26 gauge pre-coated Galvalume steel ribbed "R" panels with 36" wide net coverage, four (4) major corrugations at 12" centers, with two (2) minor ribs located symmetrically between the major ribs.
 - 2. Provide all wall panels in continuous lengths, complete with all required sealant, trim, flashings, panel closure, and other components required for complete weathertight installation. Color to be selected by Sponsor.

B. Roofing Panels:

- 1. Minimum 26 gauge Galvalume Plus steel ribbed "R" panels with 36" wide net coverage, four (4) major corrugations at 12" centers, with two (2) minor ribs located symmetrically between the major ribs.
- 2. Provide all roof panels in continuous lengths from ridge to eave, complete with all required sealant, trim, flashings, panel closure, and other components required for complete weathertight installation.
- C. Building Trim: Minimum 26 gauge pre-coated Galvalume or Galvalume Plus equal in quality to roof and wall panels, color as selected.
- D. Interior Partitions: Minimum 29 gauge Galvalume pressed rib panels. Sheeting should extend from floor level to roof with allowance for expansion to prevent buckling. Flashing to be added as necessary to seal hangar units.

E. Fasteners:

- 1. Wall Panels: #14 x 7/8" self-tapping zinc plated screws with bonded neoprene washers color coated to match wall and door sheeting.
- 2. Roof Panels: Fasten panels to purlins with #12 x 1" heavy-duty zinc/aluminum/cast alloy headed self-drilling screws with bonded neoprene washers. Stitch screws to be #14 x 7/8" self-tapping zinc plated screws with bonded neoprene washers.
- 3. Trim Fasteners: #14 x 7/8" self-tapping zinc plated screws with bonded neoprene washers color coated to match wall and door sheeting.

F. Roof and Wall Panel Sealant:

1. Neoprene or other solid or closed cell, preformed (inside for roof panels and outside for endwall panels at the rake) closure strips matching the profile of

2. Base Flashing: Manufacturer's standard base trim to provide dirt proof seal between slab and floor panels.

2.3 WIND BRACING

A. General:

- 1. Approved type rod bracing or portal frames as shown on final shop drawings.
- 2. Clean components free of oil, dirt, loose scale and foreign matter and apply one (1) coat of primer.

2.4 HANGAR DOORS

A. General:

- 1. Hangar doors shall be either electrically operated bi-fold overhead or multisection rolling wheel sliding doors adequate for building design live and wind load with uplift protection. Doors to be installed according to manufacturer's installation instructions and specifications.
- 2. Door design/manufacture shall be part of the metal building system for hangar, or certified to be compatible with hangar building design. Door panels shall match building wall material and color.
- 3. Doors to have secure locking system, to be keyed alike to a master key system, with two (2) keys per hangar, and four (4) master keys for hangar locks to be provided.

B. Electric Bi-Fold Doors:

- Each unit shall be furnished with an electrically-operated bi-fold overhead door. The electric door operator shall be sized and provided by the manufacturer to properly and safely operate the designated size door. Each door shall be controlled by a constant pressure switch controlling a singlephase electric motor, worm gear speed reducer, with direct drive or dual chain operation.
- 2. Door operator to be capable of being stopped and restarted, up or down, in any position, and have automatic stop at the fully opened and fully closed positions. Provide wall mounted motor disconnect switch adjacent to the operating switch.
- 3. A walk-in door approximately 36" wide, minimum 76" door height shall be provided in the bi-fold door for each T-hangar. The door to be installed with

hinge pins inside hangar, to swing inward, away from light and door operator switches. Door to have factory baked enamel finish to match hangar wall or trim color.

- 4. Each walk-in door shall be equipped with heavy duty stainless steel door lock. The portion of the door and frame receiving lock and strike to be solid core. All locks to be keyed alike to a master key system, two (2) keys for each lock and four (4) master keys to be provided.
- 5. Overhead doors shall be hung plumb and true to building, and shall open in a continuous motion without binding, or warping.
- 6. Provide full length, durable weatherstrip at sill and head of each overhead door assembly. Walk-in door jambs shall be sealed by steel overlap flashings or appropriate rubber weatherstrips.

C. Sliding Doors:

- 1. Sliding doors shall open to stack on the opposing hangar endwall for unobstructed opening.
- 2. Roller wheels shall be of adequate diameter for easy rolling and designed and sealed to withstand all radial and thrust loads imposed by dead load and wind pressure on doors. Bottom roller assemblies to be designed to be removable from door without removing door from opening. Each door to have vertical adjusting capability. Re-Lubrication fittings or equivalent roller bearings with fittings or pre-lubricated sealed maintenance free rollers are required.
- 3. Provide full length durable weatherstrip on leading doors. Weatherstrip shall not impair ease of door operation at all temperatures, yet provide weathertight seal.

2.5 ACCESSORIES

- A. Access Doors, Frames and Hardware: Provide all metal doors in building exterior as follows:
 - 1. Frames: Manufacturer's standard self-flashing, self-trimming, non-handed, wrap-around type fabricated from 16 gauge steel with ASTM A 525 G60 commercial zinc coating, with 5-3/4" frame profile. Provide complete with 18 gauge sill channel, 22 gauge adaptor angles, galvanized reinforcements and preparations required for finish hardware, and factory applied dark brown rust inhibitive prime coat finish.
 - 2. Doors: Manufacturer's standard non-handed type in size indicated, not less than 1-3/4"thick, of flush panel design. Fabricate from minimum 16 gauge steel with ASTM A-535 G60 minimum commercial zinc coating. Provide complete with internal reinforcements, stiffeners and sound deadening

3. Finish Hardware: Provide each door with heavy duty stainless steel door lock. The portion of the door and frame receiving lock and strike to be solid core. All locks to be keyed alike to a master key system, two (2) keys for each lock and four (4) master keys to be provided.

B. Translucent (Skylight) Panels:

Translucent panels shall be the same configuration as the roof panels with embossed finish exposed to the weather. Panels shall be of translucent polyester resin reinforced glass fiber. The polyester resin glass fiber shall be formulated to produce a weather resistant, sun resistant, stabilized product. Translucent panels shall be located in the roof as indicated on plans. *Or* Two translucent panels shall be located in each of the doors.

C. Thermal Insulation:

Roof Insulation (R11): Standard non-combustible fiberglass blanket insulation with reinforced vinyl backing, MP-50 or better. Place insulation with vinyl backing exposed-to-view from interior of building unless recommended otherwise by metal building manufacturer or shown on drawings.

2.6 ELECTRICAL WORK

- A. General: Contractor shall provide all electrical work necessary for fully operational hangars, including all accessories as listed on the drawings. All electrical work shall be in accordance with the NEC 2002, as amended and shall meet all applicable local codes. Permits required from local authorities shall be obtained and paid for by the contractor.
 - 1. Electrical service shall be brought to the building site by others. Contractor shall pay all fees and provide all coordination associated with the new service to the hangar building(s). Coordinate with Engineer and local electrical utility prior to installation to determine requirements for utility service. Install panel and meter top at 5'-6" above finish grade.
 - 2. The secondary service to the panelboard shall be underground from the utility pole unless otherwise approved by the Engineer.
 - 3. Install grounding in accordance with NEC Article 250 and connect grounding system to building steel.

4. Contractor shall coordinate all electrical work with building manufacturer and door supplier.

PART 3 EXECUTION

FOUNDATION

- A. General: The work includes the construction of a concrete foundation designed in accordance with the building manufacturer's requirements and all applicable local codes signed and sealed by a Professional Engineer licensed in the State of Texas. Foundation shall be finished to a smooth steel-troweled finish. Installation shall include a perimeter strip of 4" min. thickness reinforced concrete pavement a minimum of 18" wide, or as indicated on plans wherever hangar access paving adjoins the building. Paving strip may be poured monolithically with the foundation or dowelled in after foundation construction. The concrete perimeter strip will provide positive drainage away from the hangar, but at less than a 2% slope.
 - 1. The site prior to construction shall be roughly prepared by others and consist of subgrade prepared to pavement specifications graded to within six inches of proposed finish floor elevation. The contractor shall be responsible for excavation of the subgrade, installation of select fill, and other site work as necessary to construct grade beams and concrete foundation as required by design.
 - 2. Any additional soils information required by the foundation design engineer shall be acquired at Contractor's expense. If perimeter concrete paving strip is to be dowelled into foundation, dowel placement and detail shall be included with foundation design.
 - 3. All concrete work shall be installed per FAA specifications P-610 "Structural Portland Cement Concrete" and P-605 "Concrete Joint Seal Filler" enclosed within this bid document. Contractor shall accept responsibility for accuracy of levelness, dimensions, and squareness of foundation.

3.2 ERECTION

A. General:

- 1. Install metal building system components following manufacturer's instructions and complying with requirements shown on final shop drawings.
- 2. Erection of metal building, insulation and accessories shall be performed by a competent building erector familiar with, and experienced in, aircraft hangar construction (and having completed 5 similar projects in the last 3 years?).

B. Structural Frames:

- 1. Erect true to line, level, and plumb, rigid and secure.
- 2. Level base plates to true even plane with full bearing to supporting structures, Use non-shrinking grout to obtain uniform bearing and to maintain level base line elevation. Moist cure grout for not less than seven (7) days after placement.
- 3. Installation and location of anchor bolts shall be coordinated with manufacturer so that they are installed in the concrete foundation at the correct locations. Manufacturer will be required to review the foundation plan as prepared so that anchor bolt alignment and orientation is acceptable. Drilling and doweling of anchor bolts after the concrete foundation has been placed is unacceptable.

C. Steel Joists:

- 1. Place and secure in accordance with requirements of SJI Specifications and final shop drawings.
- 2. Place on supporting work, adjust and align in accurate locations and spacing before permanently bolting in final location.
- 3. Install bridging simultaneously with joist erection, before any construction loads are applied. Anchor ends of bridging lines at top and bottom chords where terminating at wall or beams.
- 4. Provide and install temporary bridging, connections and anchors to ensure lateral stability during construction.
- D. Bracing: Install diagonal rod or angle bracing in lieu of sidewall rod bracing, to suit manufacturer's standards.
- E. Framed Openings: Provide shapes of proper design and size to reinforce opening and to carry loads and vibrations imposed, including equipment furnished under mechanical or electrical work. Securely attach to building structural frame.

F. Roofing and Siding Panels:

1. Install roof panels with long edges running parallel to gable ends of building, with panel ends <u>parallel</u> to ridge. Install wall panels with long edges plumb. Install canopy roof panels with long edges running parallel with building walls.

- 2. Arrange and nest sidelap joints so prevailing winds will blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation.
- 3. Apply panels and associated items for neat and weathertight enclosure.
- 4. Avoid "panel creep" or application not true to line.
- 5. Protect factory finishes from damage.
- 6. Install approved type closures to exclude weather. Provide weather seal under ridge cap. Flash and seal roof panels at eave and rake, at perimeter of all openings through roof, and elsewhere as required. Flash and seal wall and liner panels at perimeter of all openings, under eaves and gable trims, along lower panel edges, and elsewhere as required or shown on drawings, as applicable

G. Wall panels:

- 1. Install wall panels on exterior of all metal buildings, with liner panels installed on building interior in locations shown on drawings.
- Apply approved type, continuous elastomeric sealant bead between metal base sill angle and concrete, and elsewhere as necessary for waterproofing. Handle and apply sealant and back-up in accordance with sealant manufacturer's recommendations.
- 3. Align bottoms of panels and fasten with manufacturer's recommended and supplied anchorage devices. Fasten flashings and trim around openings, etc. with approved type self-tapping screws; fasten window and door frames with approved type machine screws or bolts.
- 4. Install screw fasteners with power tool having controlled torque adjusted to compress tightly without damage to screws, screw heads, or panels
- H. Accessories: Install flashings, trim, ridge covers, roof curbs, pipe flashings, closure strips, roof jacks, and other accessories and sheet metal items in accordance with manufacturer's recommendations for anchorage to building and weathertight mounting.
- I. Swing Doors and Frames: Install doors and frames straight, plumb, and level. Securely anchor frames to building structure. Set units with 1/8" maximum

clearance between door and frame at jambs and head, and ¾" maximum between door and floor. Adjust hardware for proper operation.

- J. Thermal Insulation: Install in accordance with manufacturer's directions, performed concurrently with installation of roof panels.
 - 1. Roof Insulation: Standard non-combustible fiberglass blanket insulation with reinforced vinyl backing, MP-50 or better. Place insulation with vinyl backing exposed-to-view from interior of building unless recommended otherwise by metal building manufacturer or shown on drawings.

3.3 PAINTING

- A. General: Touch-up abrasions, marks, skips or other defects in shop-primed or factory finished painted surfaces with same type material as used for shop primer or factory finished painting.
 - 1. Apply finish paint coats to factory primed items on surfaces that are not required to be galvanized surfaces.
 - 2. Provide finish coats that are compatible with metal building manufacturer's prime coat paints.
 - 3. Provide approved type barrier coats over incompatible primers where required.
 - 4. Remove hardware and accessories, and similar items in place and not to be finish-painted, or provide surface-applied protection. Reinstall removed items.
 - 5. Finish exterior swing doors on tips, bottoms, and edges same as exterior faces, unless otherwise indicated.

PART 4 MEASUREMENT AND PAYMENT

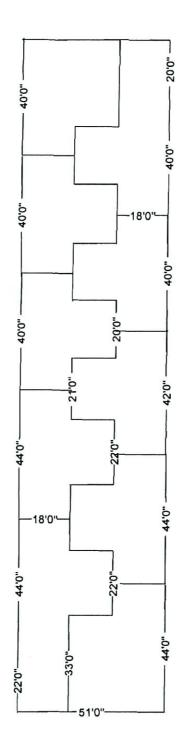
All work and labor involved with the design, erection, and construction of the hangars, reinforced concrete foundations, electrical work, and accessories shall be measured and paid for at the contract lump sum unit price for each of the hangar system(s) completed and accepted by the Engineer.

PART 5 PAVING

Work includes all incidental paving needed to tie the hangars to the apron and taxiway. All materials used shall conform to the 2004 publication of the Texas Department of Transportations Standard Specifications For Construction And Maintenance Of Highways, Streets and, Bridges or the appropriate specification from Federal Aviation Administration Advisory Circular 150/5370-10C. All materials, to include any Hot Mix Asphalt Concrete (HMAC) or Concrete batch design, shall be submitted to the TxDOT Aviation Division for approval prior to use or installation.

APPENDIX C

TYPICAL HANGAR LAYOUT



Approximate out-to-out of concrete 231'1" x 52'1".
Additional Dimensions Provided in Appendix B.
NOTE: Additional concrete perimeter will be required-see Appendix B. Approximately 230'0 x 51'0

