



**INVITATION TO BID**

**BID #50018-160008**

**FOR**

**AIR COOL CHILLER REPLACEMENT  
AT  
STADIUM SUPPORT BUILDING**

***Bid Opening Date:***

***July 15, 2016***

***at 10:00 a.m.***

**Mandatory Pre-Bid Conference**

***July 7, 2016***

***at***

***2:00 p.m.***

**Grambling State University  
Purchasing Office Conference Room  
403 Main Street  
Old President's Residence  
Grambling, LA 71245**

## ADVERTISEMENT FOR BIDS

Sealed bids will be accepted in the office of the Purchasing Director in the Purchasing Department, located at 403 Main Street, Grambling, Louisiana until 10:00 A.M. CT July 15, 2016 at which time they will be publicly opened and read aloud.

Bid # 50018-160008 – Air Cool Chiller Replacement at Stadium Support Building

A **Mandatory** Pre-Bid Conference will be held on July 7, 2016 at 2:00 p.m. in the Purchasing Department Conference Room.

Bids must be returned to the Purchasing Office in sealed envelopes. Bids must be submitted on the form enclosed herewith, and in strict conformity with the intent of same without modifications. Bids must be signed in ink, dated, and title of person signing bid must be shown on bid.

Bidding documents will be available on or about June 22, 2016 on State of Louisiana LaPac site [www.doa.state.la.us/osp/osp.htm](http://www.doa.state.la.us/osp/osp.htm), Use bid #50018150013. Additional information may be obtained from the Purchasing Department, at 318-274-3280 or email [bradleya@gram.edu](mailto:bradleya@gram.edu) and [gipsonm@gram.edu](mailto:gipsonm@gram.edu).

Bids of \$50,000.00 or more will be considered only when the bidder certifies that he holds a current valid Louisiana Contractors license of proper classification and shows the license number on the sealed bid envelope and above his signature on the bid forms as required under R.S. 37:2150-2163. Contractors desiring to bid shall submit evidence that they have a current Louisiana Contractors license of proper classification. All bids must be accompanied by bid security equal to five percent (5%) of the base bid and any additive alternates and must be in the form of a certified check, cashier's check or bid bond written by a company licensed to do business in Louisiana.

The successful bidder will be required to furnish a performance and payment bond written by a company licensed to do business in Louisiana in an amount equal to 100% of the contract amount.

No bid may be withdrawn for a period of thirty (30) days after receipt of bids.

The Owner reserves the right to reject any and all bids and to waive any informalities incidental thereto.

Grambling State University adheres to the equal opportunity provisions of federal civil rights laws and regulations.

# INSTRUCTIONS TO BIDDERS

## ARTICLE 1

### DEFINITIONS

- 1.1 The Bidding Documents include the following:
1. Advertisement for Bids.
  2. Instructions to Bidders.
  3. Bid Form
  4. Contract between Owner and Contractor.
  5. Performance and Payment Bond.
  6. Affidavit of Compliance with Act 38, 1965 Louisiana State Legislature.
  7. General Conditions of the Contract for Stadium Support Building Air Cool Chiller Replacement
  8. Supplementary (and amended General) Conditions.
  9. Divisions of the Technical Specifications.
  10. Addenda issued during bid period. (by Owner and acknowledged in bid form)
- 1.2 Addenda are written or graphic instruments issued prior to the execution of the Contract which modify or interpret the bidding documents, including Drawings and Specifications, by additions, deletions, clarifications or corrections. Addenda will become part of the Contract Documents when the Contract is executed.

## ARTICLE 2

### BIDDER'S REPRESENTATION

- 2.1 Each bidder by submitting a bid represents that s/he has read and understands the bidding documents.
- 2.2 Each bidder by making a bid represents that s/he has visited the site and familiarized themselves with the local conditions under which the work is to be performed.
- 2.3 Each bidder by submitting a bid understands they must be fully qualified under any state or local licensing law for Contractors in effect at the time and at the location of the project before submitting a bid. In the State of Louisiana; only the bids of contractors and sub-contractors duly licensed under Louisiana Revised Statute 37:2150, et. seq., will be considered, if applicable. The Contractor shall be responsible for ensuring all Sub-contractors or prospective Sub-contractors are duly licensed in accordance with the statute above.
- 2.4 Each bidder submitting a bid understands that GSU's Public Works Policy related to contractor licensure is that a contractor's license is required for any/all projects with an anticipated/bid cost greater than \$50,000

## ARTICLE 3

### BIDDING PROCEDURES

- 3.1 Bids must be prepared on the forms provided by the Owner and submitted in accordance with the Instructions to Bidders.
- 3.2 A bid will be considered invalid if not deposited at the designated location prior to the time and date for receipt of bids indicated in the advertisement or invitation to bid, or prior to any extension thereof issued to the bidders.
- 3.3 Unless otherwise provided in any supplement to these Instructions to Bidders, no bidder shall modify, withdraw or cancel his bid or any part thereof for thirty days after the receipt of bids. However, written request (letter or telegram) for the withdrawal of a bid or any part thereof will be granted if the request is received prior to the specified time of opening. Formal bids, amendments thereto or request for withdrawal of bids or any part thereof received after time specified for bid opening will not be considered whether delayed in the mail or for any other cause whatsoever.
- 3.4 Bids are to be sealed and will be received until the time specified and at the place specified in the advertisement for bids. It shall be the specific responsibility of the Bidders to deliver sealed bids to Grambling State University at the appointed place and prior to the announced time for the opening of bids. Late delivery of a bid for any reason including late delivery by the United States Mail shall disqualify the bid.
- 3.5 Prior to the receipt of bids, Addenda, if any, will be mailed or delivered (hard copy or email) to each person or firm recorded by the Owner as having received the bidding documents and will be available for inspection wherever the bidding documents are kept available for that purpose. Addenda issued after receipt of bids will be mailed or delivered only to the sealed bidder.
- 3.6 **Bids for Public Works will not be considered or accepted unless the bid is accompanied by bid security in an amount of not less than five percent (5%) of the sum of the Base Bid and any Alternates.** The bid security shall be in the form of a certified check drawn on a bank insured by the Federal Deposit Insurance Corporation, or a bid bond written by a surety company licensed to do business in Louisiana, accompanied by appropriate power of attorney and in favor of Grambling State University.
- 3.7 All Bids and Sureties must be signed by a duly authorized person of the firm or corporation and be accompanied by legal evidence authorizing the signature as valid.
- 3.8 Any interpretation, correction or change of the Bidding Documents will be made by Addendum. Interpretations, corrections or changes of the Bidding Documents made in any other manner will not be binding, and bidders shall not rely upon such interpretations, corrections and changes.
- 3.9 If bidding other than as specified, an indication must be made on the bid form, stating manufacturer's name and model number(s) being submitted for bid. Detailed specifications, drawings, pictures, brochures, diagrams or any other literature or

information necessary to determine the equality of the bid response must be included with the bid form.

- 3.10 Prior to the issuance of a purchase order the successful bidder must submit the following items to the Purchasing Department:
- a. Notarized affidavit
  - b. Contract
  - c. Insurance Certificate
  - d. Proof of filing of Performance and Payment Bond with Power of Attorney, if Public Works, and,
  - e. Resolution, if incorporated.

#### ARTICLE 4

#### EXAMINATION OF BIDDING DOCUMENTS

- 4.1 Each bidder shall examine the bidding documents carefully and, not later than seven days prior to the date for receipt of bids, shall make written request to the Owner for interpretation or correction of any ambiguity, inconsistency or error therein which he may discover. Any interpretation or correction will be issued as an Addendum by the Owner. Only a written interpretation or correction by Addendum shall be binding. No bidder shall rely upon any interpretation or correction given by any other method.

#### ARTICLE 5

#### SUBSTITUTIONS

- 5.1 Each bidder represents that his bid is based upon the materials and equipment described in the bidding documents.

#### MANUFACTURER'S NUMBERS OR TRADE NAMES:

- 5.2 Where a manufacturer's product is named or specified, it is understood that "or equal" shall apply, whether stated or not. Such name and number is meant to establish the standard of quality desired and does not restrict bidders to the specific brand, make, manufacturer, or specification named; and are set forth and convey to prospective bidders the general style, type, character, and quality of product desired; and that equal products will be acceptable. Grambling State University shall be sole judge as to whether or not the material is equal to that specified.

#### ARTICLE 6

#### REJECTION OF BIDS

- 6.1 The bidder acknowledges the right of the Owner to reject any or all bids and to waive any informality or irregularity in any bid received. In addition, the bidder recognizes the right of the Owner to reject a bid if the bidder failed to furnish any required bid security, or to submit the data required by the bidding documents, or if the bid is in any way incomplete or irregular.

## ARTICLE 7

### AWARDS

- 7.1 Awards may not be made to any person, firm, or company in default of any contract. Said person, firm, or company shall be considered non-responsible bidders and may be reinstated and awards made to them only after they have given evidence of good faith and have satisfactorily completed their obligations.

### PUBLICIZING AWARDS

- 7.2 Written notice of award shall be sent to the successful bidder. In procurement over \$25,000, each unsuccessful bidder shall be notified of the award provided that he/she submitted with his/her bid a self-addressed envelope requesting this information. Notice of award will be made a part of the procurement file.

### RIGHT TO PROTEST

- 7.3 Any person who is aggrieved in connection with the solicitation or award of a contract shall protest to the Director Purchasing. Protests with respect to a solicitation shall be submitted in writing at least two days prior to the opening of bids on all matters except housing of state agencies, their personnel, operations, equipment, or activities pursuant to R.S. 39:1643 for which such protest shall be submitted at least ten days prior to the opening of bids. Protests with respect to the award of a contract shall be submitted in writing within fourteen days after contract award.

### AUTHORITY TO RESOLVE PROTESTS:

- 7.4 Prior to the commencement of an action in court concerning any controversy, the Director of Purchasing or his designee shall have the authority, to resolve the protest of any aggrieved person concerning the solicitation or award of a contract. This authority shall be exercised in accordance with regulations.

## ARTICLE 8

### PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

- 8.1 Performance and Payment Bonds shall be required on Public Works projects with an expected cost greater than \$50,000. Performance and Payment Bonds, when required, shall be provided in an amount of 100% of the contract price. Performance and Payments Bonds shall be required by the successful bidder. Any surety bond required shall be written by a surety or insurance company currently on the U. S. Department of the Treasury Financial Management Service list of approved bonding companies which is published annually in the Federal Register. For any Public Works projects, no surety or insurance company shall write a bond which is in excess of the amount indicated as approved by the U. S. Department of the Treasury Financial Management Service list. The surety bond written for a Public Works project shall be written by a surety or insurance company that is currently licensed to do business in the State of Louisiana.

8.2 The bidder shall require the attorney in fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his power of attorney indicating the monetary limit of such power.

## RECORDING OF BOND AND CONTRACT

8.3 The Contractor shall record the Contract and Performance Bond with the Clerk of Court in Lincoln Parish and provide the Purchasing Department with proof of filing.

## ARTICLE 9

### PAYMENT

9.1 Payment will be made by Grambling State University.

9.2 The contractor will be required to provide a Clear Lien Certificate from the Lincoln Parish Clerk of Court, a process that may take an average 45 days for final payment.

## ARTICLE 10

### TAXES

10.1 Applicable taxes are to be included in lump sum bid.

## ARTICLE 11

### GUARANTEE

11.1 The materials and labor under this contract, as described in the specifications, shall be guaranteed by the Contractor for a period of one year from date of its acceptance against defects of materials or workmanship. Any defects which develop during this period shall be properly repaired or replaced without cost to the Owner as soon as possible.

### ACCEPTANCE

11.2 The guarantee covering materials and labor under this contract will begin the date a Notice of Acceptance is issued to the Contractor by Grambling State University.

## ARTICLE 12

### CHANGES IN THE WORK

12.1 A Change Order is a written order to the Contractor signed by the Owner, issued after execution of the Contract, authorizing a Change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order. A Change Order signed by the Contractor indicates his agreement therewith, including the adjustment in the Contract Sum or the Contract Time. Any Change Order not signed by the Owner will be considered null and void.

12.2 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the

Contract Sum and the Contract Time being adjusted accordingly. All such changes in the Work shall be authorized by Change Order, and shall be performed under the applicable conditions of the Contract Documents.

- 12.3 Any change order in excess of the contract limit as defined herein shall be let out for public bid. The term contract limit as used herein shall be equal to the sum of \$30,000 per project. When the Change Order is negotiated it shall be fully documented and itemized as to cost, including material quantities, material costs, insurance, employee benefits, other related costs, profit and overhead. Where certain unit prices are contained in the initial contract no deviation shall be allowed in computing negotiated change order cost.

## SUPPLEMENTARY CONDITIONS

### ARTICLE 1

#### CONTRACTOR

##### CONTRACTOR'S LICENSE

- 1.1 On any bid amounting to \$50,000 or more, the Contractor shall certify that s/he is licensed under Act 377 of the 1976 Louisiana Regular Legislative Session and show the contractor license number and the bid number on the front portion of the envelope; except projects financed, partially or wholly, with Federal Funds, provided that any successful Bidder before signing Contract thereon, files application for a license and pays the fee as provided in this Act and complies with all terms and provisions of this Act and with the rules and regulations of the Licensing Board.

##### CONTRACTOR'S AFFIDAVIT

- 1.2 In accordance with the Louisiana R.S. 38:2190 - 2220, if the Contract is awarded to the successful Bidder, the bidder shall, at the time of the signing of the Contract, execute the AFFIDAVIT included in the Contract Documents.

##### INTEREST

- 1.3 There shall be no payment of interest on money owed.

### ARTICLE 2

#### PAYMENTS AND COMPLETION

##### SUBSTANTIAL COMPLETION

- 2.1 The Owner will issue a NOTICE OF ACCEPTANCE for the Contractor to record with the Clerk of Court in Lincoln Parish.

##### FINAL COMPLETION AND FINAL PAYMENT

- 2.2 The Contract is to provide that the contractor is not to be paid more than ninety percent (90%) of the amount of the contract upon completion of the work. The Contractor shall record the NOTICE OF ACCEPTANCE with the Lincoln Parish Clerk of Court and shall furnish a CLEAR LIEN CERTIFICATE from the Clerk of Court within forty-five days after recordation of NOTICE OF ACCEPTANCE. At that time, the remaining ten percent (10%) will be paid.

##### LIQUIDATED DAMAGES

- 2.3 The Owner will suffer financial loss if the Project is not substantially complete on the date set forth in the CONTRACT DOCUMENTS. The Contractor (and/or Surety) shall be liable for and shall pay to the Owner Liquidated Damages for each calendar day of delay until the work is Substantially Complete.

The Completion Time stated in Consecutive Calendar Days and the Liquidated Damages stated in Dollars Per Day are listed in the PROPOSAL FORM

### ARTICLE 3

#### INSURANCE

**INSURANCE:** Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors. **The cost of such insurance shall be included in the Contractor's bid.**

#### A. MINIMUM SCOPE OF INSURANCE

Coverage shall be at least as broad as:

1. Insurance Services Office form number GL 0002 (Ed. 1/73) covering Comprehensive General Liability and Insurance Services Office form number GL 0404 covering Broad Form Comprehensive General Liability; or Insurance Services Office Commercial General Liability coverage ("occurrence" form CG 0001). **"Claims Made" form is unacceptable. The "occurrence form" shall not have a "sunset clause."**
2. Insurance Services Office form number CA 0001 (Ed. 1/78) covering Automobile Liability and endorsement CA 0025 or CA 0001 12 90. The policy shall provide coverage for owned, hired, and non-owned coverage. If an automobile is to be utilized in the execution of this contract, and the vendor/contractor does not own a vehicle, then proof of hired and non-owned coverage is sufficient.
3. Workers' Compensation insurance as required by the Labor Code of the State of Louisiana, including Employers Liability insurance.

#### B. MINIMUM LIMITS OF INSURANCE

Contractor shall maintain limits no less than:

1. Commercial General Liability: \$1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage.
2. Automobile Liability: \$1,000,000 combined single limit per accident, for bodily injury and property damage.
3. Workers Compensation and Employers Liability: Workers' Compensation limits as required by the Labor Code of the State of Louisiana and Employers Liability coverage.

## C. BUILDER'S RISK COVERAGE

A General Contractor shall purchase and maintain property insurance upon the entire work included in the contract for an amount equal to the greater of the full-completed value or the amount of the construction contract including any amendments thereto. The general contractor's policy shall provide "ALL RISK" Builder's Risk Insurance (extended to include the perils of wind, collapse, vandalism/malicious mischief, and theft, including theft of materials whether or not attached to any structure.) The "ALL RISK" Builder's Risk Insurance must also cover architects' and engineers' fees that may be necessary to provide plans and specifications and supervision of work for the repair and/or replacement of property damage caused by a covered peril not to exceed 10% of the cost of those repair and/or replacements.

Flood coverage shall be provided by the Contractor on the first floor and below for projects North of the Interstate Corridor beginning at the Texas-Louisiana border at Interstate 10 East to the Baton Rouge junction of Interstate 12, East to Slidell junction with Interstate 10 to Louisiana-Mississippi border. Flood sub-limit shall equal an amount no lower than ten percent (10%) of the total contract cost per occurrence. Coverage for roofing projects shall not require flood coverage.

On projects South of this corridor, flood coverage shall be provided by the State of Louisiana, as the owner, through the National Flood Insurance Program (NFIP). The Contractor will be liable for the \$5,000 deductible on the NFIP policy from the Notice to Proceed date through the Notice of Final Acceptance date of the project.

A specialty contractor shall purchase and maintain property insurance upon the system to be installed for an amount equal to the greater of the full-completed value or the amount of the contract including any amendments thereto. The specialty contractor may provide an installation floater with the same coverage as the "ALL RISK" Builder's Risk Insurance policy.

The policy must include the interest of the Owner, Contractor and Subcontractors as their interest may appear. The contractor has the right to purchase coverage or self-insure any exposures not required by the bid specifications, but shall be held liable for all losses, deductibles, self-insurance for coverages not required.

Policies insuring projects involving additions, alterations or repairs to existing buildings or structures must include and endorsement providing the following:

In the event of a disagreement regarding a loss covered by this policy which may also be covered by the State of Louisiana policy of self-insurance or any commercial property insurance policy purchased by the State of Louisiana, Office of Risk Management (ORM) covering in excess of the State of Louisiana, policy of self-insurance, this company agrees to follow the following procedure to establish coverage and/or the amount of loss:

Any party to a loss may make written demand for an appraisal of the matter in disagreement. Within 20 days of receipt of written demand, this company and either ORM or its commercial insurance company shall each select a competent and impartial appraiser and notify the other of the appraiser selected. The two appraisers

will select a competent and impartial umpire. The appraisers will then identify the policy or policies under which the loss is insured and, if necessary, state separately the value of the property and the amount of the loss that must be borne by each policy. If the two appraisers fail to agree, they shall submit their differences to the umpire. A written decision by any two shall determine the policy or policies and the amount of the loss. Each insurance company (or ORM) agree that the decision of the appraisers and the umpire if involved, will be binding and final and that neither party will resort to litigation. Each of the two parties shall pay its chosen appraiser and bear the cost of the umpire equally.

D. DEDUCTIBLES AND SELF-INSURED RETENTIONS

Any deductibles or self-insured retentions must be declared to and approved by the Agency. At the option of the Agency, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the Agency, its officers, officials, employees and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

E. OTHER INSURANCE PROVISIONS

The policies are to contain, or be endorsed to contain, the following provisions:

1. General Liability and Automobile Liability Coverage

- a. The Agency, its officers, officials, employees, Boards and Commissions and volunteers are to be added as "additional insured" as respects liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor, premises owned, occupied or used by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the Agency, its officers, officials, employees or volunteers. It is understood that the business auto policy under "Who is an insured" automatically provides liability coverage in favor of Grambling State University and the State of Louisiana.
- b. Any failure to comply with reporting provisions of the policy shall not affect coverage provided to the Agency, its officers, officials, and employees, Boards and Commissions or volunteers.
- c. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

2. Workers' Compensation and Employers Liability Coverage

The insurer shall agree to waive all rights of subrogation against the Agency, its officers, officials, employees and volunteers for losses arising from work performed by the Contractor for the Agency.

### 3. All Coverage

Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, or reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the Agency.

#### F. ACCEPTABILITY OF INSURERS

Insurance is to be placed with insurers with an A.M. Best's rating of **“A- VI or higher”**. This requirement will be waived for workers' compensation coverage only for those contractors whose workers' compensation coverage is placed with companies who participate in the State of Louisiana Workers' Compensation Assigned Risk Pool or the Louisiana Workers' Compensation Corporation.

#### G. VERIFICATION OF COVERAGE

Contractor shall furnish the Agency with certificates of insurance affecting coverage required by this clause. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates are to be received and approved by Grambling State University before work commences. Grambling State University reserves the right to require complete, certified copies of all required insurance policies, at any time.

#### H. SUBCONTRACTORS

Contractor shall include all subcontractors as insured under its policies or shall furnish separate certificates for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein.

## ARTICLE 4

### QUALITY

#### STANDARD OF QUALITY

- 1.1 Where catalog numbers and/or manufacturer's names are referred to in the specifications, they are used for the purpose of conveying to the prospective bidders the type and design of equipment, or supplies desired; but it shall be understood that bidders may submit on other makes in lieu of that mentioned, providing such other item is similar in design and equal in quality. It is not expected that the items of all manufacturers shall conform exactly to every detail and dimension mentioned in the specifications; but the essential features of the items mentioned shall be provided in the items to be furnished.

## DIVISION 1 - GENERAL REQUIREMENTS

### A. SUMMARY OF THE WORK

1. Work under this Contract shall include, but is not necessarily limited to, the following as summarized;
  - a. Stadium Support Building Air Cool Chiller Replacement

### B. LAWS, RULES AND REGULATIONS

1. Contractor shall comply with all applicable federal, state, local and University laws, ordinances, rules and regulations and shall: furnish and pay for all required permits, licenses and bonds; pay all charges and fees, and give all notices necessary and incidental to the due and lawful work required under this project.

### C. ALTERNATES

1. Base Bid

### D. SITE INSPECTIONS AND PROJECT MEETINGS

1. Site Inspections

Each bidder by making a bid represents that s/he has visited the site and familiarized themselves with the local conditions under which the work is to be performed.

2. Pre-Work Conference

Prior to the Contractor beginning any work on this project, the University will conduct a Pre-Work Conference to review and approve the Contractor's work schedule and inform the Contractor of any special conditions, controls and regulations that apply to the project.

### E. TEMPORARY FACILITIES AND CONTROLS

1. Safety Conditions

The Contractor shall post adequate warning signs and maintain safety lights as required to warn persons of hazardous conditions.

2. Security

The Contractor shall be responsible for security of his equipment, materials, etc., at the project site for the duration of the contract.

F. MATERIAL AND EQUIPMENT

1. Transportation and Handling

The Contractor shall provide for all transportation and handling required for the work on this project.

2. Storage and Protection

The Contractor shall be responsible for storage and protection of equipment and materials. The Contractor shall Protect all property of the Owner, and shall repair same, if damaged.

INDEMNIFICATION AGREEMENT

The \_\_\_\_\_ (Contractor) agrees to protect, defend, indemnify, save, and hold harmless the State of Louisiana, all State Departments, Agencies, Boards and Commissions, its officers, agents, servants and employees, including volunteers, from and against any and all claims, demands, expense and liability arising out of injury or death to any person or the damage, loss or destruction of any property which may occur or in any way grow out of any act or omission of \_\_\_\_\_(Contractor), its agents, servants, and employees, or any and all costs, expense and/or attorney fees incurred by (Contractor) as a result of any claim, demands, and/or causes of action except those claims, demands, and/or causes of action arising out of the negligence of the State of Louisiana, all State Departments, Agencies, Boards, Commissions, its agents, representatives, and/or employees. \_\_\_\_\_ (Contractor) agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto, even if it (claims, etc.) is groundless, false or fraudulent.

Accepted by \_\_\_\_\_  
Company Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

Date Accepted \_\_\_\_\_

Is Certificate of Insurance Attached?      \_\_\_\_\_ Yes      \_\_\_\_\_ No

Contract No.      \_\_\_\_\_      For Grambling State University

Purpose of Contract: \_\_\_\_\_

**Mandatory Pre-Bid Conference**

Where: Purchasing Department Conference Room – 403 Main Street – Grambling, LA

When: July 7, 2016

Time: 2:00 P.M.

This signed statement certifies that the vendor named below has visited the job site and is familiar with all conditions surrounding fulfillment of the specifications for this project.

\_\_\_\_\_  
Vendor's Company Name

\_\_\_\_\_  
GSU Project Name

\_\_\_\_\_  
GSU Representative

\_\_\_\_\_  
Vendor's Signature

Present this form to Project Manager at Pre-Bid Conference. Return this signed form with your bid response.

Grambling State University  
GRAMBLING, LOUISIANA

PROPOSAL FORM

Purchasing Department  
Grambling State University  
403 Main Street  
Grambling, LA 71245

\_\_\_\_\_2016

ATTN:

Pursuant to and in compliance with your request for proposals covering \_\_\_\_\_ at Grambling State University, Grambling, Louisiana, 71245, the undersigned hereby proposes to furnish all labor, equipment, tools, and materials, and to perform all work under the Contract Documents, of which this proposal is part, and acknowledges receipt of the following addenda \_\_\_\_\_. The undersigned declares that he has carefully examined the location and site condition, is familiar with existing conditions, has examined the Contract Documents covering the projected work and proposes by these presents to furnish all labor, equipment, tools, materials, supervision, etc. and to contract for and execute all items of work for the satisfactory completion of this project and have same ready for use and final acceptance within \_\_\_ calendar days, all in accordance with the Contract Documents.

The undersigned bidder agrees that within five days after notification that contract is ready for signature, that same will be executed and that satisfactory surety bond in a sum equal to the contract price will be provided to the University.

Attached hereto is a bid guaranty payable to Grambling State University in the amount of 5% of total bid as follows:

Certified Check in the amount of \_\_\_\_\_ (\$\_\_\_\_\_).

OR Bid Bond in the amount of \_\_\_\_\_ (\$\_\_\_\_\_).

LIQUIDATED DAMAGES:

The undersigned agrees that the Owner may retain the sum of \$150.00 per day from the amount of the Compensation to be paid him for each day after the above stated completion date, Sundays and Holidays included, that the work remains incomplete. This amount is agreed upon as the proper measure of Liquidated Damages which the Owner will sustain per day by the failure of the undersigned to complete the work at the stipulated time and is not to be construed in any sense as a penalty.

If this proposal shall be accepted and the undersigned shall fail to execute the contract and furnish performance bond as herein provided, then the proposal guarantee shall become the property of the University; otherwise, the said proposal guaranty shall be returned to the undersigned.

Bidder certifies that he has visited the job site at Grambling State University, and is fully aware of what is expected of the successful bidder (s)

---

Louisiana Contractor's License Number

---

Firm Name`

---

Authorized Signature

---

Title

---

Phone/Fax Numbers

---

Date

LOUISIANA UNIFORM PUBLIC WORK BID

TO: Grambling State University  
403 Main Street  
Grambling, LA 71245

BID FOR: Stadium Support Building Air Cool Chiller

(Owner to provide name and address of owner)

(Owner to provide name of project and other identifying information)

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: Grambling State University and dated: June 1, 2016.

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA**: (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) \_\_\_\_\_

**TOTAL BASE BID:** For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" \* but not alternates) the sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**ALTERNATES:** For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

**Alternate No. 1** for the lump sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**Alternate No. 2** for the lump sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**Alternate No. 3**

for the lump sum of:

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_)

**NAME OF BIDDER:** \_\_\_\_\_

**ADDRESS OF BIDDER:** \_\_\_\_\_  
\_\_\_\_\_

**LOUISIANA CONTRACTOR'S LICENSE NUMBER:** \_\_\_\_\_

**NAME OF AUTHORIZED SIGNATORY OF BIDDER:** \_\_\_\_\_

**TITLE OF AUTHORIZED SIGNATORY OF BIDDER:** \_\_\_\_\_

**SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER \*\*:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

\* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

\*\* If someone other than a corporate officer signs for the Bidder/Contractor, a copy of a corporate resolution or other signature authorization shall be required for submission of bid. Failure to include a copy of the appropriate signature authorization, if required, may result in the rejection of the bid unless bidder has complied with La. R.S. 38:2212(A)(1)(c) or RS 38:2212(O)

**BID SECURITY** in the form of a bid bond, certified check or cashier's check as prescribed by LA RS 38:2218.A is attached to and made a part of this bid.

STATE OF LOUISIANA  
PARISH OF LINCOLN

NAME \_\_\_\_\_  
LOCATION \_\_\_\_\_

AFFIDAVIT

Before me, the undersigned authority, duly commissioned and qualified within and for the state and parish aforesaid, personally came and appeared \_\_\_\_\_ representing \_\_\_\_\_ who, being by me first duly sworn deposed and said that he has read this affidavit and does hereby agree under oath to comply with all provisions herein as follows:

PART I

Section 2220 of Part II of Chapter 10 to Title 38 of the Louisiana Revised Statutes of 1950 as amended.

(1) That affiant employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the affiant whose services in connection with the construction of the public building or project or in securing the public contract were in the regular course of their duties for affiant; and

(2) That no part of the contract price received by affiant was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the affiant whose services in connection with the construction of the public building or project were in the regular course of their duties for affiant.

PART II

Section 2190 of Part I of Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950 as amended.

The affiant, if he be an architect or engineer, or representative thereof, does not own a substantial financial interest, either directly or indirectly, in any corporation, firm, partnership, or other organization which supplied materials for the construction of a public building or project when the architect or engineer has performed architectural or engineering services, either directly or indirectly, in connection with the public building or project for which the materials are being supplied.

For the purpose of this Section, a "substantial financial interest" shall exclude any interest in stock being traded on the American Stock Exchange or the New York Stock Exchange.

That affiant, if subject to the provisions of this section, does hereby agree to be subject to the penalties involved for the violation of this section.

PART III

That affiant does hereby state that he has read and agrees to comply with and be subject to the provisions of Part V of Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950, being Sections 2290 through 2296 of Title 38 as amended.

Signature of Affiant: \_\_\_\_\_

SWORN TO AND SUBSCRIBED BEFORE ME THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2016

Signature of Notary: \_\_\_\_\_

Grambling State University

Grambling, Louisiana

This Agreement, made and executed, on this \_\_\_\_\_ day of the month in the year of our Lord, TWO THOUSAND and THIRTEEN, by and through Grambling State University, the Party of the First Part, and hereinafter designated as "University" and \_\_\_\_\_, Contractor, domiciled and doing business in \_\_\_\_\_, Party of the Second Part, and hereinafter designated as Contractor.

WITNESSETH, That, in consideration of the covenants and agreements herein contained to be performed by the parties hereto and of the payments hereinafter agreed to be made, it is mutually agreed as follows:

The Contractor shall and will provide and furnish all materials, equipment and labor and perform the work required to complete in a thorough and workmanlike manner, to the satisfaction of the University, project entitled \_\_\_\_\_, in strict accordance with the Plans and Specifications which are on file in the Purchasing Department at Grambling State University. The bid on this project, numbered \_\_\_\_\_, was opened on \_\_\_\_\_, at \_\_\_\_\_. The plans and specifications and the Proposal

Form are made a part hereof as fully as if set out herein and hereby become a part of this contract. Contract amount is \$\_\_\_\_\_.

It is agreed and understood between the parties hereto that the Contractor agrees to accept and the University agrees to pay for the work at the price stipulated in said Proposal, such payment to be in lawful money of the United States, and the payment shall be made at the time and the manner set forth.

Performance will begin \_\_\_\_\_ Grambling State University

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

TITLE: \_\_\_\_\_ TITLE: \_\_\_\_\_

# GRAMBLING STATE UNIVERSITY STADIUM SUPPORT BUILDING CHILLER REPLACEMENT PROJECT

## General Information

1.1 Stadium Support Building is a four pipe building with a single chiller. The scope of this project is to replace the existing air cooled chiller. An additional chilled water pump shall also be added to the system for backup. This project is a “mechanical prime” project.

The contractor shall provide turnkey pricing, including all labor, rentals, equipment, materials, mechanical, electrical, and temperature controls work. NO ASBESTOS in the scope. Contractor shall provide one (1) year parts and labor warranty for scope of work. The scope of work is as follows:

### A. Demolition

- Remove the existing air cooled chiller from the premises. Proper refrigerant removal and equipment disposal is the responsibility of the contractor.
- Remove the existing power wiring serving the condenser water pump and chiller as well as the controls. Eliminate the old conduit and wire.

### B. General Installation Work

- The contractor is required to do all required cutting and patching necessary to accommodate the new piping and the removal of the existing piping. Some holes may need to be enlarged and some patched. All brick and concrete work is the responsibility of the installing contractor. All work shall be professionally done and match all existing finishes.
- The work area shall be cleaned on a daily basis and the site shall be left in better condition than it was before the project was started. The fence around the existing cooling tower shall be kept in good condition and locked every day when work is complete. Any damage to the fence or the building shall be the responsibility of the installing contractor to correct.
- Set the new chiller on the current concrete pad.
- The chiller shall be placed on vibration pads provided by the chiller manufacturer.
- Set a new chilled water pump in the location of the existing condenser water pump. Modify the pad and isolation base as necessary for a proper installation.

### C. Mechanical Work

- Drain the necessary water in the piping required to implement the project.
- There will be two chilled water pumps (one new and one existing) and a single air cooled chiller.
- Connect existing chilled water supply and return water piping to new chiller. All piping shall match the existing pipe size up to the chiller connection. Provide any necessary pipe reducers and couplings required to allow proper connection to the 4” connections on the chiller. Include new 40 mesh strainer and manual supply and return water isolation valves at the chiller.
- Connect the chilled water piping to the additional new chilled water pump such that the two

pumps will be able to receive equal flow to them for a lead/lag style operation. Provide and install “tees”, etc as necessary.

- The system shall be configured so that we are continuing to pump through the chiller.
- On the new pump, provide and install new manual isolation valves, strainers, isolators, triple duty valves, etc and install them per the manufacturer’s requirements and instructions.
- Insulate all new piping installed on the project. All piping shall be insulated and jacketed by a professional and licensed insulation subcontractor. Insulation is not allowed to be completed by in-house forces of the installing contractor. The required insulation shall be included in this scope of work. All insulation inside the building shall be paper wrapped. All insulation outside the building shall be aluminum jacketed.
- Reuse the existing air separators.
- Clean out all debris from the piping.
- Refill the water in the chiller system and purge the air from the systems.
- Recharge the chemical treatment as required.

#### D. Electrical Work

- As this is a renovation project where we are tying back into the existing electrical, it has been determined that the chiller is required to have two separate power feed to accommodate the existing electrical switch gear. A single point power connection is not allowed.
- Run a new 400 amp and a new 450 amp service (two new circuits) from the existing fused disconnects in the main switch gear to the two unit mounted disconnects on the new chiller installed outside.  
Reuse the existing pump starter and disconnect. Rework the starter to allow for the correct amperage of the new chilled water pump.
- Provide the necessary relays, controls, conduit and wiring to interlock the chiller and the two pumps. The chiller shall control the two chilled water pumps through its control panel.

### 1.2 Related Sections

Included in this document are specifications on the chiller and pump

### 1.3 Referenced Standards

Page 3 of 21

All work shall be performed in full accord with the latest editions of the applicable state and national building codes and local ordinances.

### 1.4 Fees, Permits, Insurance, and Taxes

The contractor shall provide proof of liability insurance with a minimum of a \$1,000,000 policy. The contractor shall also provide proof that all subcontractors carry the same coverage amount shown above.

The contractor shall make arrangements for and pay for all inspection fees, connection fees, and permits required by the local authorities. The contractor shall also pay all taxes applicable to the job.

### 1.8 Construction Requirements

A. The building is to remain comfortable during construction. All work associated with chiller must be done during the cooler months (November and December) and scheduled during times when the temperature in the building will not rise above 72 degrees while the cooling system is down.

B. Likewise, all work associated with the boiler must be completed before the heating system is required to maintain building comfort.

C. Bid is a fix cost project. Payment terms are net 30 days.

- D. Any escalation must be included in your bid.
- E. The contractor is responsible for the entire scope of work.
- F. The contractor shall be responsible for meeting all applicable local, state, and federal building code requirements as they pertain to his scope of work. The contractor shall be responsible for obtaining any required permits and licenses.

## CHILLER SPECIFICATIONS

### PART 1: GENERAL

#### 1.01 SUMMARY

A. Section includes design, performance criteria, refrigerants, controls, and installation requirements for air-cooled scroll compressor chillers.

#### 1.02 REFERENCES

A. Comply with applicable Standards/Codes of AHRI 550/590, ANSI/ASHRAE 15, ETL, cETL, NEC, and OSHA as adopted by the State.

B. Units shall meet the efficiency standards of ASHRAE Standard 90.1, 2013 and FEMP standard 2012.

#### 1.03 SUBMITTALS

A. Submit shop drawings and product data in accordance with the specifications.

B. Submittals shall include the following:

1. Dimensioned plan and elevation view drawings, required clearances, and location of all field connections
2. Summary of all auxiliary utility requirements such as electricity, water, etc. Summary shall indicate quality and quantity of each required utility.
3. Single line schematic drawing of the field power hookup requirements, indicating all items that are furnished.
4. Schematic diagram of control system indicating points for field interface/connection.
5. Diagram shall fully delineate field and factory wiring.
6. Certification of factory-run test of packaged chiller unit signed by company officer.
7. Installation and operating manuals.

#### 1.04 DELIVERY AND HANDLING

A. Chiller shall be delivered to the job site completely assembled and charged with refrigerant and oil by the manufacturer.

B. Comply with the manufacturer's instructions for rigging and handling equipment.

#### 1.05 WARRANTY

A. Standard Warranty (Domestic): The refrigeration equipment manufacturer's guarantee shall be for a period of one year from date of equipment start-up but not more than 18 months from shipment. The guarantee shall provide for repair or replacement due to failure by material and workmanship that prove defective within the above period, excluding refrigerant.

B. 1st Year Labor Warranty: Entire unit

C. Extended Compressor Warranty: Four (4) years extended compressor warranty, parts only.

D. Refrigerant Warranty: One (1) year R410A refrigerant.

### PART 2: PRODUCTS 150 ton or equal

#### 2.01 ACCEPTABLE MANUFACTURERS

A. Daikin Applied Model AGZ170

B. Multistack ASP170

C. Trane RTAC155

## 2.02 UNIT DESCRIPTION

A. Provide and install as shown on the plans factory-assembled, factory-charged air-cooled scroll compressor packaged chillers in the quantity specified. Each chiller shall consist of hermetic trio scroll compressor sets (total six compressors), brazed plate evaporator, air-cooled condenser section, microprocessor-based control system and all components necessary for controlled unit operation.

B. Each chiller shall be factory run-tested to verify operation. Operating controls and refrigerant charge shall be checked for proper operation and optimum performance.

## 2.03 DESIGN REQUIREMENTS

A. Flow Range: The chiller shall have the ability to support variable flow range down to 40% of nominal design (based on AHRI conditions).

B. Operating Range: The chiller shall have the ability to control leaving chilled fluid temperature from 15F to 65F

C. General: Provide a complete scroll compressor packaged chiller as specified herein and as shown on the drawings. The unit shall be in accordance with the standards referenced in section 1.02 and any local codes in effect.

D. Performance: Refer to the schedule of performance on the drawings. The chiller shall be capable of stable operation to a minimum percentage of full load (without hot gas bypass) of 25%.

Performance shall be in accordance with AHRI Standard 550/590.

E. Acoustics: Sound pressure levels for the unit shall not exceed the following specified levels. All manufacturers shall provide the necessary sound treatment (parts and labor) to meet these levels if required. Sound data shall be provided with the quotation. Test shall be in accordance with AHRI Standard 370.

## 2.04 CHILLER COMPONENTS

### A. Compressor

1. The compressors shall be sealed hermetic, scroll type with crankcase oil heater and suction strainer. The compressor motor shall be refrigerant gas cooled, high torque, hermetic induction type, two-pole, with inherent thermal protection on all three phases and shall be mounted on RIS vibration isolator pads. The compressors shall be equipped with an internal module providing compressor protection and communication capability.

### B. Evaporator

1. The evaporator shall be a compact, high efficiency, dual circuit, brazed plate-to-plate type heat exchanger consisting of parallel stainless steel plates

2. The evaporator shall be protected with an electric resistance heater (heat trace tape) and insulated with 3/4" thick closed-cell polyurethane insulation. This combination shall provide freeze protection down to -20° ambient air temperature.

3. The water-side working pressure shall be a minimum of 653 psig. Vent and drain connections shall be provided in the inlet and outlet chilled water piping by the installing contractor.

Evaporators shall be designed and constructed according to, and listed by, Underwriters Laboratories (UL).

### C. Condenser

1. Condenser fans shall be propeller type arranged for vertical air discharge and individually driven by direct-drive fan motors. The fans shall be equipped with a heavy-gauge vinyl-coated fan guard. Fan motors shall be TEAO type with permanently lubricated ball bearings, inherent overload protection, three-phase, direct-drive, 1140 rpm. Each fan section shall be partitioned to avoid cross circulation.

2. Coil shall be all aluminum alloy microchannel design and shall have a series of flat tubes containing multiple, parallel flow microchannels layered between the refrigerant manifolds.

Coils shall consist of a two-pass arrangement. Each condenser coil shall be factory leak tested with high-pressure air under water. Coils shall withstand 1000+ hour acidified synthetic sea water fog (SWAAT) test (ASTM G85-02) at 120°F with 0% fin loss and develop no leaks.

#### D. Refrigerant Circuit

1. Each of the two refrigerant circuits shall include a refrigerant filter-drier, sight glass with moisture indicator, liquid line solenoid valve (no exceptions), expansion valve, and insulated suction line.

#### E. Construction

1. Unit casing and all structural members and rails shall be fabricated of pre-painted or galvanized steel to meet ASTM B117, 500-hour salt spray test.

2. Upper section of unit shall have protective and decorative louvers covering the coils and unit end and have painted steel wraps enclosing the coil end sections and piping.

#### F. Control System

1. A centrally located weatherproof control panel shall contain the field power connection points, control interlock terminals, and control system. Power and starting components shall include factory circuit breaker for fan motors and control circuit, individual contactors for each fan motor, solid-state compressor three-phase motor overload protection, inherent fan motor overload protection and two power blocks (one per circuit) for connection to remote, contractor supplied disconnect switches. Hinged access doors shall be lockable. Barrier panels or separate enclosures are required to protect against accidental contact with line voltage when accessing the control system.

2. Shall include multi-point disconnect switches (one per circuit).

#### G. Unit Controller

1. An advanced DDC microprocessor unit controller with a 5-line by 22-character liquid crystal display provides the operating and protection functions. The controller shall take preemptive limiting action in case of high discharge pressure or low evaporator pressure. The controller shall contain the following features as a minimum:

2. The unit shall be protected in two ways: (1) by alarms that shut the unit down and require manual reset to restore unit operation and (2) by limit alarms that reduce unit operation in response to some out-of-limit condition. Shut down alarms shall activate an alarm signal.

#### 3. Shutdown Alarms

- a. No evaporator water flow (auto-restart)
- b. Sensor failures
- c. Low evaporator pressure
- d. Evaporator freeze protection
- e. High condenser pressure
- f. Outside ambient temperature (auto-restart)
- g. Motor protection system
- h. Phase voltage protection

#### 4. Limit Alarms

- a. Condenser pressure stage down, unloads unit at high discharge pressures.
- b. Low ambient lockout, shuts off unit at low ambient temperatures.
- c. Low evaporator pressure hold, holds stage #1 until pressure rises.
- d. Low evaporator pressure unload, shuts off one compressor.

#### 5. Unit Enable Section

a. Enables unit operation from either local keypad, digital input, or BAS

6. Condenser fan control - The unit controller shall provide control of condenser fans based on compressor discharge pressure.

## 2.05 OPTIONS AND ACCESSORIES

A. The following options are to be included:

1. The following accessories, if selected, are to be included:

- a. Rubber-in-shear vibration isolators for field installation
- b. Factory-mounted thermal dispersion type flow switch
- c. 115V GFI convenience outlet

## PART 3: EXECUTION

### 3.01 INSTALLATION

A. Install in strict accordance with manufacturer's requirements, shop drawings, and contract documents.

B. Adjust and level chiller in alignment on supports.

C. Coordinate electrical installation with electrical contractor.

D. Coordinate controls with control contractor.

E. Install a field-supplied or optional manufacturer-supplied strainer in the chilled water return line at the evaporator inlet; 40-mesh on units with brazed-plate evaporators.

### 3.02 START-UP AND TRAINING

A. Provide testing and starting of machine, and instruct the Owner in its proper operation and maintenance.

B. Provide owner training on the system. Include four hours of owner training along with laminated detailed instructions to be mounted on the wall in the mechanical room listing proper operating procedures for the systems.

## CHILLED WATER PUMP

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and

Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

A. This Section includes the following categories of hydronic pumps for hydronic systems:

- a. Flexible coupled, end suction pumps.
- b. Pump specialty fittings.

#### 1.3 SUBMITTALS

A. Product Data: Include certified performance curves and rated capacities; shipping, installed, and operating weights; furnished specialties; final impeller dimensions; and accessories for each type of product indicated. Indicate pump's operating point on curves.

B. Shop Drawings: Show pump layout and connections. Include Setting Drawings with templates for installing foundation and anchor bolts and other anchorages.

C. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between Manufacturer-installed and field-installed wiring.

D. Maintenance Data: For pumps to include in maintenance manuals specified in Division 1.

#### 1.4 QUALITY ASSURANCE

A. UL Compliance: Fabricate and label pumps to comply with UL 778, "Motor-Operated Water Pumps," for construction requirements.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

A. Manufacturer's Preparation for Shipping: Clean flanges and exposed machined metal surfaces and treat with anticorrosion compound after assembly and testing. Protect flanges, pipe openings, and

nozzles with wooden flange covers or with screwed-in plugs.

B. Store pumps in dry location.

C. Retain protective covers for flanges and protective coatings during storage.

D. Protect beatings and couplings against damage from sand, grit, and other foreign matter.

E. Comply with pump Manufacturer's written rigging instructions.

#### 1.6 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

A. The basis of design is a 15 HP B&G Mode 1510 3E with a 10.125 BF and rated for 432 gpm and 85 ft TDH.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equivalent:

a. Flexible-Coupled, End-Suction Pumps:

i. Armstrong, 4030 Series.

ii. Bell and Gossett ITT; Div. of ITT Fluid Technology Corp., 1510 Series.

b. Triple-Duty Valves:

i. Armstrong, FTV Series

ii. Bell & Gossett ITT; Div. Of ITT Fluid Technology Corp., Model 3DS-S.

#### 2.2 GENERAL PUMP REQUIREMENTS

A. Pump Units: Factory assembled and tested.

B. Motors: Include built-in, thermal-overload protection and grease-lubricated ball bearings. Select each motor to be nonoverloading over full range of pump performance curve.

#### 2.3 FLEXIBLE-COUPLED, END-SUCTION PUMPS

A. Description: Base-mounted, centrifugal, flexible-coupled, end-suction, single-stage, bronze-fitted, back-pull-out, radially split case design; rated for 175 psig (1200 kPa) minimum working pressure and a continuous water temperature of 225 degrees F (107 degrees C).

a. Casing: Cast iron, with flanged piping connections, drain plug at low point of volute, threaded gage tappings at inlet and outlet connections, and integral feet or other means on volute to support weight of casing and attached piping. Casing shall allow removal and replacement of impeller without disconnecting piping.

b. Impeller: ASTMB 584, cast bronze, statically and dynamically balanced, closed, overhung, single suction, keyed to shaft, and secured by locking cap screw.

c. Wear Rings: Replaceable, bronze casing ring.

d. Shaft and Sleeve: Steel shaft with bronze sleeve.

e. Seals: Mechanical, with carbon-steel rotating ring, stainless-steel spring, ceramic seat, and flexible bellows and gasket.

f. Coupling: A Woods "S," Falk or Thomas "DBZ" coupling shall be provided between the pump and motor. The coupling shall be secured by set screws and 316 stainless steel shaft keys.

g. Coupling Guard: Steel, removable, and attached to mounting frame.

h. Mounting Frame: Welded-steel frame and cross members, factory fabricated from ASTM A 36/A 36M channels and angles. Fabricate for mounting pump casing, coupling guard, and motor. Field-drill motor-mounting holes for field-installed motors.

i. Motor: Secured to mounting frame, with adjustable alignment.

j. Motor: TEFL with regreasable ball bearings.

B. Pump Selection:

a. Shall be such that the selection point is on the ascending portion of the performance curve or to the left of the best efficiency point of the selected impeller diameter. Pumps shall have a

constantly rising curve from duty point to shut off. Impeller diameter shall be limited to a diameter equal to 90 percent or less than that of the maximum impeller diameter available for the pump size selected. Pump selection shall not overload the motor at design and not more than 110 percent of nameplate horsepower at any point on curve.

#### PART3-EXECUTION

##### 3.1 EXAMINATION

A. Examine equipment foundations and anchor-bolt locations for compliance with requirements for installation. Examine roughing-in for piping systems to verify actual locations of piping connections before pump installation. Examine foundations for suitable conditions where pumps are to be installed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

##### 3.2 PUMP INSTALLATION

A. Install pumps according to Manufacturer's written instructions.

B. Install pumps to provide access for periodic maintenance, including removing motors, impellers, couplings, and accessories.

C. Support pumps and piping separately so piping is not supported by pumps.

D. Set base-mounted pumps on concrete foundation. Disconnect coupling halves before setting. Do not reconnect couplings until alignment operations have been completed. Support pump baseplate on rectangular metal blocks and shims, or on metal wedges with small taper, at points near foundation bolts to provide a gap of 3/4 to 1-1/2 inches (19 to 38 mm) between pump base and foundation for grouting. Adjust metal supports or wedges until pump and driver shafts are level. Check coupling faces and suction and discharge flanges of pump to verify that they are level and plumb.

##### 3.3 ALIGNMENT

A. Align pump and motor shafts and piping connections after setting them on foundations, after grout has been set and foundation bolts have been tightened, and after piping connections have been made.