SUBMIT BID TO:
PURCHASING DEPARTMENT
UNIVERSITY OF FLORIDA
971 ELMORE DRIVE
GAINESVILLE, FL 32611-5250
Phone: (352) 392-1331 - FAX: (352) 392-8837
Web Address: www.purchasing.ufl.edu

INVITATION TO BID
Commodity

Acknowledgment Form

<table>
<thead>
<tr>
<th>Page 1 of 50 Pages</th>
<th>BID WILL BE OPENED: March 24, 2015 at 4:00 PM and may not be withdrawn within 45 days after such date and time. Questions are due by March 15, 2015 EOB</th>
<th>BID NO.</th>
<th>ITB15KO-142</th>
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<tr>
<th>UNIVERSITY MAILING</th>
<th>PURCHASING AGENT</th>
<th>BID TITLE:</th>
<th>Belle Glade AHU Equipment Package IFAS Project 15063</th>
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<tr>
<td>DATE: 3/9/15</td>
<td>KO/CS</td>
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<tr>
<th>VENDOR NAME</th>
<th>VENDOR MAILING ADDRESS</th>
<th>REASON FOR NOT SUBMITTING BID</th>
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<th>CITY - STATE - ZIP CODE</th>
<th>AREA CODE</th>
<th>TELEPHONE NO.</th>
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I certify that this bid is made without prior understanding, agreement, or communication with any corporation, firm, or person submitting a bid for the same materials, supplies, or equipment and is in all respects fair and without collusion or fraud. I agree to abide by all conditions of this bid and certify that I am authorized to sign this bid for the vendor and that the vendor is in compliance with all the requirements of the Invitation to Bid, including but not limited to, certification requirements. In submitting a bid on behalf of the Board of Trustees, hereinafter known as the University, the vendor offers and agrees that if the bid is accepted the vendor will convey, sell, assign, or transfer to the University all rights, title and interest in and to all causes of action in and to, and all matters arising hereunder. If not submitting a bid, respond by returning only this vendor acknowledgment form.

SEALED BIDS: All bid sheets and this form must be executed and submitted in a sealed envelope. (DO NOT INCLUDE MORE THAN ONE BID PER ENVELOPE.) The face of the envelopes shall contain, in addition to the above address, the date, and time of the bid opening and the bid number. Bids not submitted on the attached bid form shall be rejected. All bids are subject to the conditions specified herein. Those which do not comply with these conditions are subject to rejection.

1. EXECUTION OF BID: Bid must contain an original manual signature of authorized representative in the space provided above. Bid must be typed or printed in ink. Use of erasable ink is not permitted. All corrections to prices made by vendor must be initialed.

2. NO BID: If not submitting a bid, respond by returning only this vendor acknowledgment form, marking it "NO BID", and explain the reason in the space provided above. Failure to respond to a procurement solicitation without giving justifiable reason for such failure, nonconformance to contract conditions, or other pertinent factors deemed reasonable and valid shall be cause for removal of the supplier's name from the bid mailing list. NOTE: To qualify as a respondent, vendor must submit a "NO BID", and it must be received no later than the stated bid opening date and hour.

3. BID OPENING: Shall be public, on the date, location and the time specified on the bid form. It is the vendor's responsibility to assure that the bid is delivered at the proper time and place of the bid opening. Bids which for any reason are not so delivered will not be considered. A bid may not be altered after opening of the bids.

4. PRICES, TERMS AND PAYMENT: Firm prices shall be bid and will include all packing, handling, shipping charges, and delivery to the destination shown herein.

(a) TAXES: The University does not pay Federal Excise and Sales taxes on direct purchases of tangible personal property or services. The Florida Tax Exempt Number is 11-06-024056-57C. This exemption does not apply to purchases of tangible personal property or services made by vendors who use the tangible personal property or services in the performance of contracts for the improvement of University-owned real property as defined in Chapter 192, F.S.

(b) DISCOUNTS: Vendors are encouraged to reflect trade discounts in the unit prices quoted; however, vendors may offer a discount for prompt payment. Prompt payment discounts will not be considered in the bid award. However, every effort will be made to take the discount within the time offered.

(c) MISTAKES: Vendors are expected to examine the specifications, delivery schedule, bid prices, extensions, and all instructions pertaining to supplies and services. Failure to do so will be at vendor's risk. In case of a mistake in extensions the unit price will govern.

(d) INVOICING AND PAYMENT: Payment will be made by the University of Florida after the items awarded to a vendor have been received, inspected, and found to comply with award specifications, free of damage or defect and properly invoiced. All invoices shall bear the purchase order number. Payment for partial shipments shall not be made unless specified. An original invoice shall be submitted. Failure to follow these instructions may result in delay in processing invoices for payment. Payment shall be made in accordance with Section 215.422 (1) (2) F.S. VENDOR OMBUDSMAN: The University’s vendor ombudsman, whose duties include acting as an advocate for vendors may be contacted at 352-392-1241.

(e) ANNUAL APPROPRIATIONS: The University’s performance and obligation to pay under any contract awarded is contingent upon an annual appropriation by the Legislature.

(f) CONDITION AND PACKAGING: It is understood and agreed that any item not so delivered will not be considered. A bid may not be altered after opening of the bids.

(g) SAFETY STANDARDS: Unless otherwise stipulated in the bid, all manufactured items and fabricated assemblies shall comply with applicable requirements of Occupational Safety and Health Act and any standards hereunder.

5. CONFLICT OF INTEREST: The award hereunder is subject to the provisions of Chapter 112, F.S. All vendors must disclose with their bid the name of any officer, director, or agent who is also an employee of the University of Florida. Further, all vendors must disclose with their bid the name of any University employee who owns, directly or indirectly, an interest of five percent (5%) or more in the vendor's firm or any of its branches.

6. AWARDS: As the best interest of the University may require, the right is reserved to make award(s) by individual item, group of items, all or none or a combination thereof, to reject any and all bids or waive any minor irregularity or technicality in bids received. When it is determined there is no competition to the lowest responsible vendor, evaluation of other bids are not required. Vendors are cautioned to make no assumptions unless their bid has been evaluated as being responsive.

AUTHORIZED SIGNATURE (MANUAL)

NAME AND TITLE (TYPED)

GENERAL CONDITIONS

(c) MISTAKES: Vendors are expected to examine the specifications, delivery schedule, bid prices, extensions, and all instructions pertaining to supplies and services. Failure to do so will be at vendor's risk. In case of a mistake in extensions the unit price will govern.

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(g) SAFETY STANDARDS: Unless otherwise stipulated in the bid, all manufactured items and fabricated assemblies shall comply with applicable requirements of Occupational Safety and Health Act and any standards hereunder.
7. INTERPRETATION/DISPUTES: Any questions concerning conditions or specifications shall be directed in writing to the Purchasing Department. Inquiries must reference the date of bid opening and bid number. No interpretations shall be considered binding unless provided in writing by the University in response to requests in full compliance with this protest procedure.

8. NOTICE OF BID PROTEST BONDING REQUIREMENT: Any person or entity who files an action protesting a decision or an intended decision pertaining to a competitive solicitation shall, at the time of filing the formal protest, post with the University a bond payable to the University in an amount equal to: 10% of the estimated value of the protestor’s bid or proposal; 10% of the estimated expenditure during the contract term; $10,000.00; or whichever is less. The bond shall be conditioned upon the payment of all costs which may be adjudged against the person or entity filing the protest action. In lieu of a bond, the University may accept a cashier’s check, bank official check or money order in the amount of the bond. The University reserves the right to PROTESTING PERSON OR ENTITY TO FILE THE REQUIRED BOND, CASHIER’S CHECK, BANK OFFICIAL CHECK OR MONEY ORDER AT THE TIME OF THE FILING THE FORMAL PROTEST SHALL RESULT IN DENIAL OF THE PROTEST.

9. GOVERNMENTAL RESTRICTIONS: In the event any governmental restrictions may be imposed which would necessitate alteration of the material, quality, workmanship or performance of the items offered in this bid prior to their delivery, it shall be the responsibility of the successful vendor to notify the Purchasing Director at date and time of the alteration. The University reserves the right to accept any such alteration, including any price adjustments occasioned thereby, or to cancel the contract at no expense to the University.

10. LEGAL REQUIREMENTS: Applicable provision of all Federal, State, county and local laws, and of all rules and regulations, and of all development, submittal and evaluation of all bids received in response hereto and development, shall govern and any all claims and disputes which may arise between persons or entities committing a bid response hereunder, and through its officers, employees and authorized representatives, or any other person, natural or otherwise; and lack of knowledge by any vendor shall not constitute a cognizable defense against the legal effect thereof.

11. LOBBYING: Vendor is prohibited from using funds provided under any contract or purchase order for the purpose of lobbying the Legislature or any official, officer, commission, board, authority, council, committee, or department of the executive branch or the judicial branch of state government.

12. ADVERTISING: In submitting a bid, the vendor agrees not to use the results therefrom as a part of any commercial advertising. Vendor may not use the names, logos, or trademarks of the University, its employees, or affiliates without the prior written consent of the University.

13. ASSIGNMENT: Any contract or purchase order issued pursuant to this Invitation to Bid and the monies which may become due hereunder are not assignable except with the prior written approval of the purchaser.

14. LIABILITY: The vendor agrees to indemnify and save the University of Florida, the State of Florida and the Florida Board of Governors, their officers, agents, and employees harmless from any and all judgments, awards, costs and expenses, including attorney’s fees, and also all claims on account of damage to property, including loss of use thereof, or bodily injury (including death) which may be hereafter sustained by the vendor, its employees, its subcontractors, or the University of Florida, the State of Florida and the Florida Board of Governors, their officers, agents, or employees, or any person or entity therein, and out of or in connection with any contract awarded and which are the result of the vendor’s breach of contract or of the negligent acts of the vendor, its officers, agents, or employees. This clause does not apply to contracts between government agencies.

15. FACILITIES: The University reserves the right to inspect the vendor’s facilities at any time with prior notice.

16. ADDITIONAL QUANTITIES: For a period not exceeding ninety (90) days from the date of acceptance of any offer by the University of Florida, the right is reserved to acquire additional quantities up to but not exceeding those shown on bid or the highest level at the prices bid in the Invitation to Bid. If bids are not acceptable, the bid sheets must be noted “BID IS FOR SPECIFIED QUANTITY ONLY.”

17. SERVICE AND WARRANTY: Unless otherwise specified, the vendor shall assure proper service and replacements that will be provided during and subsequent to this contract. Vendors must explain on an attached sheet to what extent warranty and service facilities are provided.

18. SAMPLES: Samples of items, when called for, must be furnished free of expense, on or before bid opening time and date, and if not destroyed, may upon request be returned at the RETURN OF MATERIAL: All copy, photos, artwork, and other materials supplied by the University of Florida must be handled carefully and returned in good condition upon completion of the job. Each return is a condition of the contract and payment will not be made until return is affected.

damage claims. However, to assist him in the expeditious handling of damage claims, the University will:

(a) Record any evidence of visible damage on all copies of the delivery carrier’s Bill of Lading.
(b) Report damage (Visible or Concealed) to the carrier and contract supplier confirming such reports in writing within fifteen days of delivery, requesting that the damage be investigated, and that the University be remitted any losses as provided in the specifications.
(c) Retain the item and its shipping container, including inner packing material until inspection is performed by the carrier, and disposition given by the contract supplier.
(d) Provide the contract supplier with a copy of the carrier’s Bill of Lading and damage inspection report.

20. PATENTS, COPYRIGHTS, TRADEMARKS, ROYALTIES and other Intellectual Property: The vendor, without exception, shall indemnify and save harmless the University and its employees from liability of any nature or kind, including cost and expenses for or on account of any copyrighted, patented, or patented invention, process, or article manufactured or used in the performance of the contract. The University, including use by the University of Florida, if the vendor uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the bid prices shall include all royalties or costs arising from the use of such design, device, or materials in any way involved in the work.

21. CONFLICT BETWEEN DOCUMENTS: If any terms and conditions contained within the documents that are a part of this ITB or resulting contract are in conflict with any other terms and conditions contained therein, then the various documents in default of which except any and all recount, and costs may be charged in the following order of preference: change order, purchase order, addenda, special conditions, general conditions, specifications, departmental description of work, and bid.

22. MANUFACTURERS’ NAMES AND APPROVED EQUIVALENTS: Any manufacturer’s name, trade names, brand names, information and/or catalog numbers listed in a specification are for information and not intended to limit competitors. If bids are submitted not conforming to the bid form, the manufacturer’s name and number. Vendor shall submit with the bid, cuts, sketches, and descriptive literature, and/or complete specifications. Reference to literature shall be exceeded with the bid. The vendor is hereby asked to explain in detail the reasons the proposed equivalent will meet the specifications and not be considered an exception thereto. The University of Florida reserves the right to accept any bid as the best offer in the University file.

23. NONCONFORMANCE TO CONTRACT CONDITIONS: Items may be tested and/or inspected for compliance with specifications by any appropriate testing facilities. Should the items fail, the University may require the vendor to rework the items for costs incurred by the University in connection with the examination or testing. The data derived from any tests for compliance with specifications are public records and open to examination thereto in accordance with Chapter 119, F.S. Items delivered not conforming to specifications may be rejected and returned at vendor’s expense. These items and items not delivered as per delivery data in bid and/or purchase order may result in vendor being found in default in which event any and all reprocurement costs may be charged against the defaulting vendor. Any violation of these conditions may also result in the vendor’s name being removed from the University of Florida’s vendor file.

24. PUBLIC RECORDS: Any material submitted in response to this Invitation to Bid will become a public document pursuant to Section 119.07 F.S. This includes information which is considered confidential, trade secret or a trade secret. Any claim of confidentiality is waived upon submission, effective after opening pursuant to Section 119.07 F.S.

25. DELIVERY: Unless actual date of delivery is specified (or if specified delivery cannot be met, show number of days required to make delivery) after receipt of purchase order in space provided. Delivery time may become a basis for making an award (see Special Conditions). Delivery shall be within the normal working hours of the University of Florida, Monday through Friday, unless otherwise specified.

26. PUBLIC PRINTING - PREFERENCE GIVEN PRINTING WITHIN THE STATE: The University of Florida shall give preference to vendors located within the state when awarding contracts to have materials printed, whenever such printing can be done at no greater expense than, and at a level of quality comparable to, that obtainable from a vendor located outside of the state.

(a) CONTRACTS NOT TO BE SUBLETTED: In accordance with Class B Printing Law, the University will not consider proposals from independent salesmen or brokers. No contract shall be awarded to any broker, agent, or independent contractor offering printing manufactured by other firms or persons.

(b) DISQUALIFICATION OF VENDOR: Reasonable grounds for believing that a vendor is involved in more than one bid for the same work will be cause for rejection of all bids in which such vendors are believed to be involved. Any or all bids may be rejected if it is found that collusion exists between two or more than one vendor. Bids in which the prices obviously are unbalanced will be subject to rejection.

(c) TRADE CUSTOMS: Current trade customs of the printing industry are recognized unless accepted by Special Conditions or Specifications herein.

(d) COMMUNICATIONS: It is expected that all materials and proofs will be recognized unless accepted by Special Conditions or Specifications herein.

(e) RETURN OF MATERIAL: All copy, photos, artwork, and other materials supplied by the University of Florida must be handled carefully and returned in good condition upon completion of the job. Each return is a condition of the contract and payment will not be made until return is affected.

END OF SECTION

NOTE: ANY AND ALL SPECIAL CONDITIONS AND SPECIFICATIONS ATTACHED HERETO WHICH VARY FROM THE GENERAL CONDITIONS SHALL HAVE PRECEDENCE.
NON-TECHNICAL SPECIFICATIONS

1. **AWARD** - Award will be made on an "All-or-None Offer Total Offer" basis. Any contract awarded pursuant to this Invitation to Bid will be awarded to the single best bidder/proposer or to none at all.

2. **CANCELLATION** - Orders or contracts resulting from the bid award will be subject to immediate cancellation if either the product or the service does not comply with the bid specifications.

3. **CANCELLATION** - For the protection of both parties, this contract may be canceled in whole, or in part, by either party by giving 30 days prior notice in writing to the other party.

4. **AVAILABILITY OF FUNDS** - The State of Florida's and the University’s performance and obligation to pay under this contract is contingent upon an annual appropriation by the Legislature of the State of Florida.

5. **USE OF TERMS** - The terms University of Florida, University, IFAS and Institute of Food and Agricultural Sciences are used synonymously in this Invitation to Bid unless otherwise indicated. The terms vendor, proposer and contractor are used synonymously in this Invitation to Bid unless otherwise indicated. The terms bid and proposal are used synonymously in this Invitation to Bid.

6. **INVITATION TO BID FORM** - All bids should be submitted on the University of Florida Invitation to Bid/Bidders Acknowledgment form with one (1) complete original bid and one (1) complete photocopy in a sealed envelope, with the following information on the outside of the envelope: bid number, date and time of bid opening, and Company name in order to be considered in the award.

7. **BID DELIVERY** - If this bid will be mailed through the U. S. Postal Service as regular mail, address the bid to the PO Box as shown on the Invitation to Bid Acknowledgment Form.

   If a company representative plans to attend the bid opening; if the bid will be hand delivered; or if the bid will be delivered by a service other than the U. S. Postal Service regular mail, i.e., Federal Express, Airborne, United Parcel Service, Courier, U. S. Postal Express Mail, etc., address the bid to the Building and room number as shown on the Invitation to Bid Acknowledgment form. **Bid number, bid title and bid opening date/time must be on the outer most envelope - packages received without this information may be refused.**

   **EMAILED AND FAXED BIDS WILL NOT BE ACCEPTED.**

8. **INQUIRIES** - The University will not give verbal answers to inquiries regarding the specifications, or verbal instructions prior to or after the award of the bid. A verbal statement regarding same by any person shall be **non-binding**. The University is not liable for any increased
costs resulting from the Bidder accepting verbal direction. All changes, if necessary, shall be made by written addendum to the bid.

Any explanation desired by Vendors must be requested of the University of Florida Purchasing Services in writing, and if an explanation is necessary, a reply shall be made in the form of an addendum, a copy of which will be forwarded to each Vendor who has received a set of the bid documents from the University. Vendors obtaining bid documents from any other source must notify the University of their name, address, telephone, and facsimile numbers in order to receive any addenda. Direct all inquiries to Karen Olitsky, Purchasing Agent kolitsk@ufl.edu.

TIME FOR QUESTIONS – Questions regarding this Invitation to Bid will be entertained through March 16, 2015 EOB. Any questions received after this date and time may not be answered.

9. NON-MANDATORY SITE VISIT – Vendors that wish to visit the site may contact Sean Mountain at smountain73@ufl.edu to make arrangements.

10. ERRORS – The University is not liable for any errors or misinterpretations made by the bidder in responding to this Invitation to Bid.

11. VENDOR’S EXPENSE – All proposals submitted in response to the Invitation to Bid must be submitted at the sole expense of the Vendor, whether or not any agreement is signed as a result of this Invitation to Bid. Proposers will pay all costs associated with the preparation of proposals and necessary visits to campus and other required site visits.

12. QUALIFICATIONS OF BIDDERS - This bid will be awarded only to a responsible bidder qualified by experience to provide the work specified. If the bidder has not been pre-qualified with University Purchasing within the fiscal year (July 1 through June 30), the following evidence of eligibility may be required to be submitted:

   a. Evidence that bidder is licensed by the appropriate government agency to perform the work specified.
   b. Experience record showing bidder's training and experience in similar work.
   c. List and briefly describe projects of similar size and/or complexity which have been completed satisfactorily. List should include names of contracts, dates of contracts, location, and names and addresses of owners.

13. F.O.B. POINT - The F.O.B. point shall be Everglades Research & Education Center, 3200 E. Palm Beach Road, Belle Glade FL.

14. DELIVERY COSTS - All costs for delivery, storage, freight, and packing are to be prepaid by the contractor, FOB, University of Florida or address as listed in the Invitation to Bid.

15. ASSEMBLY AND/OR PLACEMENT - It will be the responsibility of the successful bidder to supply the necessary labor and materials for the placement of all equipment as specified in the Invitation to Bid and assure proper adjustment and satisfactory operation of all features prior to acceptance by the University.
16. **PROTECTION OF PROPERTY** - The successful bidder shall at all times guard against damage or loss to the property of the University or of other vendors or contractors and shall be held responsible for replacing or repairing any such loss or damage. The University may withhold payment or make such deductions as deemed necessary to insure reimbursement or replacement for loss or damage to property through negligence of the successful bidder or his agents. The contractor shall provide all barricades and take all necessary precautions to protect buildings and personnel.

17. **DEBRIS** - Successful bidder shall be responsible for the prompt removal of all debris which is a result of delivery, assembly, or installation.

18. **WARRANTY** - The successful bidder shall furnish factory warranty on all equipment furnished against defect in material and/or workmanship. The factory warranty shall become effective on the date of delivery and acceptance by the University. Should any defect in material or workmanship, excepting ordinary wear and tear, appear during the above stated warranty period, the successful bidder shall repair or replace same at no cost to the University immediately upon written notice from University Purchasing. The successful bidder will not be liable under the above warranty for any defects or damages resulting from unforeseeable causes beyond the control and without the fault or neglect by the University, acts of God, fires, floods, and hurricanes.

19. **MAINTENANCE AND INSTRUCTION MANUALS** - The successful bidder shall include at least one copy of an instruction manual with each unit supplied. This manual shall include at least a minimum of operating instructions, maintenance and repair information, including schematic diagrams and a list of available replacement parts.

20. **MATERIAL SAFETY DATA SHEET** - In accordance with Chapter 442, Florida Statutes, if this purchase order involves the shipping of any item designated as a toxic substance such shipment must be accompanied by a Material Safety Data Sheet (MSDS). A toxic substance is defined as any chemical substance or mixture in gaseous, liquid or solid state, if such substance appears on the "Florida Substance List" promulgated by the Department of Labor and Employment Security; is manufactured, produced, used, applied or stored in the workplace; and causes a significant risk to safety or health during, or as a proximate result of, any customary or reasonable foreseeable handling or use. The MSDS must be maintained by the user agency and must include the following information:

    a. The Chemical name and the common name of the toxic substance.
    b. The hazards or other risks in the use of the toxic substance, including:
       1. The potential for fire, explosion, corrosion, and reactivity.
       2. The known acute and chronic health effects of risks from exposure, including the medical conditions which are generally recognized as being aggravated by exposure to the toxic substance; and
       3. The primary routes of entry and symptoms of overexposure.
    c. The proper precautions, handling practices, necessary personal protective equipment, and other safety precautions in the use of or exposure to the toxic substances, including appropriate emergency treatment in case of overexposure.
d. The emergency procedure for spills, fire, disposal, and first aid.

e. A description in lay terms of the known specific potential health risks posed by the toxic substance intended to alert any person reading this information.

f. The year and month, if available, that the information was compiled and the name, address, and emergency telephone number of the manufacturer responsible for preparing the information.

Any questions regarding this requirement should be directed to: Department of Labor and Employment Security, Bureau of Industrial Safety and Health, Toxic Waste Information Center, 2551 Executive Center Circle West, Tallahassee, Florida 32301-5014, Telephone: 1-800-367-4378.

21. INSURANCE – NON-CONSTRUCTION – The Contractor shall purchase from and maintain with a company or companies, lawfully authorized to do business in Florida and acceptable to the University, such insurance as will protect the Contractor from claims arising out of or resulting from the Contractor’s operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. All insurance policies shall be issued and countersigned by representatives of such companies duly authorized for the State of Florida and shall be written on ISO standard forms or their equivalents. The Contractor shall file with the University Certificates of Insurance prior to the commencement of the work and shall file certificates of insurance evidencing the renewal of such policies at least thirty (30) days prior to the date the each applicable insurance policy is scheduled to expire. Please note that the University of Florida must be named “additional insured” on automobile and general liability policies.

   **Contractors Liability Insurance** - The Contractor shall provide the ISO Commercial General Liability policy for general liability coverage’s for limits of not less than of $500,000 per occurrence. Coverage’s shall be maintained without interruption from date of commencement of work until date of final payment.

   **Worker's Compensation** - The Contractor shall secure and maintain for the life of this Agreement, valid Worker's Compensation Insurance as required by Chapter 440, Florida Statues.

   **Automobile Liability** - The Contractor shall secure and maintain during the life of this Agreement, Automobile Liability insurance on all vehicles against bodily injury and property damage in the amount of at least, $500,000 per occurrence.

22. NOTICE TO CONTRACTORS OF ASBESTOS-CONTAINING MATERIALS IN UNIVERSITY BUILDINGS - Asbestos containing materials (ACM) can be found in almost any building in the United States more than 10 years old. The University of Florida is no exception. The types of asbestos most commonly found are pipe and boiler insulation, fireproofing, hard panels known as "Transite", floor tile, and spray or trowel-applied ceiling finishes. ACM is generally not hazardous if left undisturbed.

The University has implemented an Asbestos Program to assure safe management and removal of ACM. Contractors, consultants, and other vendors providing service to the University may encounter ACM and must, therefore, comply with the following instructions:

a. Avoid disturbing suspected ACM. Exercise caution and watch for possible ACM.
b. If it is necessary to disturb ACM, first notify the appropriate Division Asbestos Representative listed in this notice, or the University of Florida Asbestos Coordinator, before proceeding with your work. You shall take whatever precautions are necessary to protect humans' health and the environment, and comply with all applicable Federal, State, and Local laws pertaining to asbestos.

d. If you require additional information on possible locations of ACM in a particular building, contact the Asbestos Representative from the Division for which you are working.

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<tr>
<th>Division</th>
<th>Asbestos Representative</th>
<th>Telephone</th>
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<tbody>
<tr>
<td>Physical Plant</td>
<td>Assoc. Dir. Physical Plant</td>
<td>(352) 392-7793</td>
</tr>
<tr>
<td>Health Center</td>
<td>Asst. Dir. Health Ctr. Physical Plant</td>
<td>(352) 392-4417</td>
</tr>
<tr>
<td>Housing</td>
<td>Asst. Dir. of Housing Maint. Serv.</td>
<td>(352) 392-2161</td>
</tr>
<tr>
<td>Reitz Union</td>
<td>Maintenance Superintendent</td>
<td>(352) 392-1614</td>
</tr>
<tr>
<td>IFAS</td>
<td>Engineer</td>
<td>(352) 392-6488</td>
</tr>
</tbody>
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23. **OSHA REGULATIONS** - It is the responsibility of the contractor to insure that ALL OSHA regulations applying to this job are adhered to at all times.

24. **PRISON REHABILITATIVE INDUSTRIES** - It is expressly understood and agreed that any articles which are the subject of, or required to carry out this contract shall be purchased from Pride of Florida in the same manner and under the procedures set forth in Section 946.515 (2), (4), Florida Statutes; and for purposes of this contract the person, firm or other business entity carrying out the provisions of this contract shall be deemed to be substituted for this agency insofar as dealings with such corporation. Contact, Terrie Brooks, Bid Administrator, PRIDE of Florida, 2720 Blair Stone RD, Suite G, Tallahassee, FL 32301

25. **PUBLIC ENTITY CRIME** - A person or affiliate who has been placed on the convicted vendor list by the Department of Management Services, State of Florida, may not submit a proposal on a contract to provide any goods or services, including construction, repairs, or leases and may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant for the University of Florida for a period of 36 months from the date of being placed on the convicted vendor list, a "person" or "affiliate" includes any natural person or any entity, including predecessor or successor entities or any entity under the control of any natural person who is active in its management and who has been convicted of a public entity crime (Rule 6C1-3.020 FAC).

26. **FEDERAL DEBARRMENT** - By signing this bid/proposal, the offeror certifies, to the best of its knowledge or belief, that the offeror and its principals are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency; or have not within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them in connection with a public contract or subcontract; or are not criminally or civilly charged by a governmental entity with commission of offenses; or has not within a three year period preceding this offer had a contract terminated for default by any Federal agency. (Federal Acquisition Regulation 52.209-5).
27. **DISCRIMINATION** – An entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid on a contract to provide goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not award or perform work as a contractor, supplier, subcontractor or consultant under contract with any public entity, and may not transact business with any public entity.

28. **EQUAL OPPORTUNITY STATEMENT** - The State Universities have established equal opportunity practices which conform to both the spirit and the letter of all laws against discrimination and prohibits discrimination based on race, creed, color, sex, age, national origin, marital status or religion. To be considered for inclusion as a supplier under this agreement, the proposer commits to the following:

   a. The provisions of Executive Order 11246, September 24, 1966, and the rules, regulations and relevant orders of the Secretary of Labor are applicable to each order placed against this agreement regardless of value.

   b. If the proposer expects to receive $10,000 in orders during the first 12 months of this agreement, a complete certificate of non-segregated facilities shall be attached to the proposal response.

   c. If the proposer expects to receive $50,000 in orders during the first 12 months of this agreement and employs more than 50 people, standard form 100 (EEO-O-1) must be filed prior to March 1 of each year.

   d. If the proposer expects to receive $50,000 in orders during the first 12 months and employs more than 50 people, a written program for affirmative action compliance must be maintained by the proposer, subject to review upon request by the user agencies of this agreement.

   If you have already complied with the above, please indicate ____

29. **SMALL BUSINESS PROGRAM** - University is an equal opportunity institution and, as such, encourages the use of small businesses, including women and minority-owned small businesses in the provision of goods and services. Small businesses should have a fair and equal opportunity to compete for dollars spent by the University. Competition ensures that prices are competitive and a broad vendor base is available. Vendor shall use good faith efforts to ensure opportunities are available to small businesses, including women and minority-owned businesses. For questions about the University’s Small Business Program contact Faylene Welcome, Director of Small Business and Vendor Diversity, 352-392-0380.

30. **AMERICANS WITH DISABILITY ACT** - If special accommodations are needed in order to attend a pre-proposal meeting or a proposal opening, contact Cheri Spitzer at cspitzer@ufl.edu, three business days prior to either Pre-Proposal meeting or Proposal opening.
31. **NOTICE TO CONTRACTOR** - The University shall consider the employment by any contractor of unauthorized aliens a violation of section 274A(e) of the Immigration and Nationality Act. Such violation shall be cause for unilateral cancellation of this contract.

32. **CONTRACTOR SHALL IMPLEMENT** - a drug-free workplace program in accordance with the requirements of Section 440.102, Florida Statutes.

33. **TOBACCO-FREE CAMPUS POLICY** – As of July 1, 2010 the University of Florida campus has been tobacco-free. The use of cigarettes or other tobacco products in UF buildings, parking lots, or in vehicles in these areas is prohibited. The successful vendor is expected to respect this smoke-free policy and fully comply with it.

34. **FLORIDA PREFERENCE**—Preference for Florida Based Vendors for Purchases of Personal Property in accordance with §.287.084, Florida Statute; a preference shall be provided to vendors with a principal place of business in Florida. If the lowest responsible and responsive bid for personal property is from a vendor whose principal place of business is outside of Florida and is in a state or political subdivision thereof that grants a preference for the same purchase of personal property to a vendor in such state or political subdivision, as applicable, then the University shall grant the same preference to the Florida based vendor with the lowest responsible and responsive bid received pursuant to this Invitation to Bid.

If the lowest responsible and responsive bid is from a vendor whose principal place of business is in a state that does not grant a preference for the purchase of personal property to a vendor in such state, then the University shall grant a preference in the amount of 5 percent to the lowest and responsive Florida base vendor.

For vendors whose principal place of business is outside of Florida, such vendors must, at the time of submitting its bid, provide a written opinion from a licensed attorney in its state specifying (a) the preference(s) granted by the state or political subdivision and (b) how the preference(s) is/are calculated.

The attached Attestation of Principal Place of Business must be completed and returned with your ITB response.
Name of Bidder: ___________________________ Business Name: ____________________________________________

Identify the State in which the Bidder has its principal place of business: ____________________________________

Bidder’s Signature: ___________________________ Title: ____________________________________________________

INSTRUCTIONS: IF your principal place of business above is located within the State of Florida, provide the information as indicated above and return this form with your bid response. No further action is required. IF your principal place of business is outside of the State of Florida, the following must be completed by an attorney and returned with your bid response. Failure to comply may be considered as non-responsive to the terms of this solicitation.

OPINION OF OUT-OF-STATE BIDDER’S ATTORNEY ON BIDDING PREFERENCES
(To be completed by the Attorney for an Out-Of-State Bidder)

NOTICE: §287.084(2), Florida Statutes, provides that “a vendor whose principal place of business is outside this state must accompany any written bid, proposal, or reply documents with a written opinion of an attorney at law licensed to practice law in that foreign state, as to the preferences, if any or none, granted by the law of that state [or political subdivision thereof] to its own business entities whose principal places of business are in that foreign state in the letting of any or all public contracts.” See also § 287.084(1), Florida Statutes.

LEGAL OPINION ABOUT STATE BIDDING PREFERENCES
(Please Select One)

☐ The Bidder’s principal place of business is in the State of __________________________ and it is my legal opinion that the laws of that state do not grant a preference in the letting of any or all public contracts to business entities whose principal places of business are in that state.

☐ The Bidder’s principal place of business is in the State of __________________________ and it is my legal opinion that the laws of that state grant the following preference(s) in the letting of any or all public contracts to business entities whose principal places of business are in that State: [Please describe applicable preference(s) and identify applicable state law(s)]:

LEGAL OPINION ABOUT POLITICAL SUBDIVISION BIDDING PREFERENCES
(Please Select One)

☐ The Bidder’s principal place of business is in the political subdivision of __________________________ and it is my legal opinion that the laws of that political subdivision do not grant a preference in the letting of any or all public contracts to business entities whose principal places of business are in that political subdivision.

☐ The Bidder’s principal place of business is in the political subdivision of __________________________ and it is my legal opinion that the laws of that political subdivision grant the following preference(s) in the letting of any or all public contracts to business entities whose principal places of business are in that political subdivision: [Please describe applicable preference(s) and identify applicable authority granting the preference(s)]:

________________________________________________________

Signature of out-of-state Bidder’s attorney: _______________________________________________________________

Printed name of out-of-state Bidder’s attorney: __________________________________________________________

Address of out-of-state Bidder’s attorney: ________________________________________________________________

Telephone number of out-of-state Bidder’s attorney: (_____) _______ - _________

Email address of out-of-state Bidder’s attorney: __________________________________________________________

Attorney’s states of bar admission: ________________________________________________________________
IFAS Belle Glade Building 7499
AHU Replacement
Equipment Package
IFAS Project No. 15063

for

IFAS Facilities Operations
PO Box110850
Building 124, Mowry Road
University of Florida
Gainesville, Florida 32611

Project Manual including Specifications
Bid Documents
February 13, 2015
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SECTION 15005/MECHANICAL GENERAL

1 GENERAL

1.1 The work covered by this division consists of providing all labor, equipment and materials and performing all operations necessary for the installation of the mechanical work as herein called for and shown on the drawings.

1.2 Related Documents:

1.2.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.2.2 This is a Basic Mechanical Requirements Section. Provisions of this section apply to work of all Division 15 sections.

1.2.3 Review all other contract documents to be aware of conditions affecting work herein.

1.2.4 Definitions:

1.2.4.1 Provide: Furnish and install, complete and ready for intended use.

1.2.4.2 Furnish: Supply and deliver to project site, ready for subsequent requirements.

1.2.4.3 Install: Operations at project site, including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar requirements.

1.3 Permits and Fees: Contractor shall obtain all necessary permits, meters, and inspections required for his work. Owner shall pay all fees and charges incidental thereto.

1.4 Verification of Owner's Data: Prior to commencing any work the Contractor shall satisfy himself as to the accuracy of all data as indicated in these plans and specifications and/or as provided by the Owner. Should the Contractor discover any inaccuracies, errors, or omissions in the data, he shall immediately notify the Architect/Engineer in order that proper adjustments can be anticipated and ordered. Commencement by the Contractor of any work shall be held as an acceptance of the data by him after which time the Contractor has no claim against the Owner resulting from alleged errors, omissions or inaccuracies of the said data.

1.5 Delivery and Storage of Materials: Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. All material shall be stored to provide protection from the weather and accidental damage.

1.6 Extent of work is indicated by the drawings, schedules, and the requirements of the specifications. Singular references shall not be constructed as requiring only one device if multiple devices are shown on the drawings or are required for proper system operation.

1.7 Field Measurements and Coordination:
1.7.1 The intent of the drawings and specifications is to obtain a complete and satisfactory installation. Separate divisional drawings and specifications shall not relieve the Contractor from full compliance of work indicated on any of the drawings or in any section of the specifications.

1.7.2 Verify all field dimensions and locations of equipment to insure close, neat fit with other trades' work. Make use of all contract documents and approved shop drawings to verify exact dimension and locations.

1.7.3 Coordinate work in this division in proper sequence to insure that the total work is completed within contract time schedule and with a minimum cutting and patching.

1.7.4 Locate all apparatus symmetrical with architectural elements. Install to exact height and locations when shown on architectural drawings. When locations are shown only on mechanical drawings, be guided by architectural details and conditions existing at job and correlate this work with that of others.

1.7.5 Install work as required to fit structure, avoid obstructions, and retain clearance, headroom, openings and passageways. Cut no structural members without written approval.

1.7.6 Carefully examine any existing conditions, piping, and premises. Compare drawings with existing conditions. Report any observed discrepancies. It shall be the Contractor's responsibility to properly coordinate the work and to identify problems in a timely manner. Written instructions will be issued to resolve discrepancies.

1.7.7 Because of the small scale of the drawings, it is not possible to indicate all offsets and fittings or to locate every accessory. Drawings are essentially diagrammatic. Study carefully the sizes and locations of structural members, wall and partition locations, trusses, and room dimensions and take actual measurements on the job. Locate piping, ductwork, equipment and accessories with sufficient space for installing and servicing. Contractor is responsible for accuracy of his measurements and for coordination with all trades. Contractor shall not order materials or perform work without such verification. No extra compensation will be allowed because field measurements vary from the dimensions on the drawings. If field measurements show that equipment or piping will not fit, the Architect/Engineer shall be consulted. Remove and relocate, without additional compensation, any item that is installed and is later found to encroach on space assigned to another use.

1.8 Guarantee:

1.8.1 The Contractor shall guarantee labor, materials and equipment for a period of one (1) year from Substantial Completion, or from Owner's occupancy, whichever is earlier. Contractor shall make good any defects and shall include all necessary adjustments to and replacement of defective items without expense to the Owner.

1.8.2 Owner reserves right to make emergency repairs as required to keep equipment in operation without voiding Contractor's Guarantee Bond nor relieving Contractor of his responsibilities during guarantee period.

1.9 Approval Submittals:
1.9.1 When approved, the submittal control log and submittals shall be an addition to the specifications herewith, and shall be of equal force in that no deviation will be permitted except with the approval of the Architect/Engineer.

1.9.1.1 Shop drawings, product literature, and other approval submittals will only be reviewed if they are submitted in full accordance with the General and Supplementary Conditions and Division 1 and the following.

1.9.1.1.1 Submittals shall be properly organized in accordance with the approved submittal control log.

1.9.1.1.2 Submittals shall not include items from more than one specification section in the same submittal package unless approved in the submittal control log.

1.9.1.1.3 Submittals shall be properly identified by a cover sheet showing the project name, Architect and Engineer names, submittal control number, specification section, a list of products or item names with model numbers in the order they appear in the package, and spaces for approval stamps. A sample cover sheet is included at the end of this section.

1.9.1.1.4 Submittals shall have been reviewed and approved by the General Contractor (or Prime Contractor). Evidence of this review and approval shall be an "Approved" stamp with a signature and date on the cover sheet.

1.9.1.1.5 Submittals that include a series of fixtures or devices (such as plumbing fixtures or valves) shall be organized by the fixture number or valve type and be marked accordingly. Each fixture must include all items associated with that fixture regardless of whether or not those items are used on other fixtures.

1.9.1.1.6 The electrical design shown on the drawings supports the mechanical equipment basis of design specifications at the time of design. If mechanical equipment is submitted with different electrical requirements, it is the responsibility of the Contractor to resolve all required electrical design changes (wire and conduit size, type of disconnect or overload protection, point(s) of connection, etc.) and clearly show the new electrical design on the mechanical submittal with a written statement that this change will be provided at no additional cost. Mechanical submittals made with no written reference to the electrical design will be presumed to work with the electrical design. Any corrections required will be at no additional cost.

1.9.2 If the shop drawings show variation from the requirements of contract because of standard shop practice or other reasons, the Contractor shall make specific mention of such variation in writing in his letter of transmittal and on the submittal cover sheet in order that, if acceptable, Contractor will not be relieved of the responsibility for executing the work in accordance with the contract.

1.9.3 Review of shop drawings, product literature, catalog data, or schedules shall not relieve the Contractor from responsibility for deviations from contract drawings or specifications, unless he has in writing called to the attention of the Architect/Engineer each such deviation in writing at the time of submission, nor shall it relieve him from responsibility for errors of any sort in shop drawings, product literature, catalog data, or schedules. Any feature or function specified but not mentioned in the submittal shall be assumed to be included per the specification.

1.9.4 Submit shop drawings as called for in other sections after award of the contract and before any
material is ordered or fabricated. Shop drawings shall consist of plans, sections, elevations and details to scale (not smaller than ¼” per foot), with dimensions clearly showing the installation. Direct copies of small scale project drawings issued to the Contractor are not acceptable. Drawings shall take into account equipment furnished under other sections and shall show space allotted for it. Include construction details and materials.

1.10 Test Reports and Verification Submittals: Submit test reports, certifications and verification letters as called for in other sections. Contractor shall coordinate the required testing and documentation of system performance such that sufficient time exists to prepare the reports, submit the reports, review the reports and take corrective action within the scheduled contract time.

1.11 O&M Data Submittals: Submit Operation and Maintenance data as called for in other sections. When a copy of approval submittals is included in the O&M Manual, only the final “Approved” or “Approved as Noted” document shall be used. Contractor shall organize these data by specification number. Prepare O&M Manuals as required by Division 1 and as described herein. Submit O&M Manuals on a searchable CD-ROM in addition to required hard bound copies. Submit manuals prior to the Substantial Completion inspection.

2 PRODUCTS

2.1 All materials shall be new or Owner-supplied reused as shown on the drawings, the best of their respective kinds, suitable for the conditions and duties imposed on them at the building and shall be of reputable manufacturers. The description, characteristics, and requirements of materials to be used shall be in accordance with qualifying conditions established in the following sections.

2.2 Equipment and Materials:

2.2.1 Shall be new and the most suitable grade for the purpose intended. Equipment furnished under this division shall be the product of a manufacturer regularly engaged in the manufacture of such items for a period of three years. Where practical, all of the components shall be products of a single manufacturer in order to provide proper coordination and responsibility. Where required, Contractor shall furnish proof of installation of similar units or equipment.

2.2.2 Each item of equipment shall bear a name plate showing the manufacturer's name, trade name, model number, serial number, ratings and other information necessary to fully identify it. This plate shall be permanently mounted in a prominent location and shall not be concealed, insulated or painted.

2.2.3 The label of the approving agency, such as UL, IBR, ASME, ARI, AMCA, by which a standard has been established for the particular item shall be in full view.

2.2.4 The equipment shall be essentially the standard product of a manufacturer regularly engaged in the production of such equipment and shall be a product of the manufacturer's latest design.

2.2.5 A service organization with personnel and spare parts shall be available within two hours for each type of equipment furnished.

2.2.6 Install in accordance with manufacturer's recommendations. Place in service by a factory trained
representative where required.

2.2.7 Materials and equipment are specified herein by a single or by multiple manufacturers to indicate quality, material and type of construction desired. Manufacturer's products shown on the drawings have been used as basis for design; it shall be the Contractor's responsibility to ascertain that alternate manufacturer's products, or the particular products of named manufacturers, meet the detailed specifications and that size and arrangement of equipment are suitable for installation.

2.2.8 Model Numbers: Catalog numbers and model numbers indicated in the drawings and specifications are used as a guide in the selection of the equipment and are only listed for the contractor's convenience. The contractor shall determine the actual model numbers for ordering materials in accordance with the written description of each item and with the intent of the drawings and specifications.

2.3 Requests for Substitution:

2.3.1 Where a particular system, product or material is specified by name, consider it as standard basis for bidding, and base proposal on the particular system, product or material specified.

2.3.2 Requests by Contractor for substitution will be considered only when reasonable, timely, fully documented, and qualifying under one or more of the following circumstances.

2.3.2.1 Required product cannot be supplied in time for compliance with Contract time requirements.

2.3.2.2 Required product is not acceptable to governing authority, or determined to be non-compatible, or cannot be properly coordinated, warranted or insured, or has other recognized disability as certified by Contractor.

2.3.2.3 Substantial cost advantage is offered Owner after deducting offsetting disadvantages including delays, additional compensation for redesign, investigation, evaluation and other necessary services and similar considerations.

2.3.3 All requests for substitution shall contain a "Comparison Schedule" and clearly and specifically indicate any and all differences or omissions between the product specified as the basis of design and the product proposed for substitution. Differences shall include but shall not be limited to data as follows for both the specified and substituted products:

Principal of operation.
Materials of construction or finishes.
Thickness of gauge of materials.
Weight of item.
Deleted features or items.
Added features or items.
Changes in other work caused by the substitution.
Performance curves.

If the approved substitution contains differences or omissions not specifically called to the attention of the Architect/Engineer, the Owner reserves the right to require equal or similar features to be added to the substituted products (or to have the substituted products replaced) at
3 EXECUTION

3.1 Workmanship: All materials and equipment shall be installed and completed in a first-class workmanlike manner and in accordance with the best modern methods and practice. Any materials installed which do not present an orderly and reasonably neat and/or workmanlike appearance, or do not allow adequate space for maintenance, shall be removed and replaced when so directed by the Architect/Engineer.

3.2 Coordination:

3.2.1 The Contractor shall be responsible for full coordination of the mechanical systems with shop drawings of the building construction so the proper openings and sleeves or supports are provided for piping, ductwork, or other equipment passing through slabs or walls.

3.2.2 Any additional steel supports required for the installation of any mechanical equipment, piping, or ductwork shall be furnished and installed under the section of the specifications requiring the additional supports.

3.2.3 It shall be the Contractor's responsibility to see that all equipment such as valves, dampers, filters and such other apparatus or equipment that may require maintenance and operation are made easily accessible, regardless of the diagrammatic location shown on the drawings.

3.2.4 All connections to fixtures and equipment shown on the drawings shall be considered diagrammatic unless otherwise indicated by detail. The actual connections shall be made to fully suit the requirements of each case and adequately provide for expansion and servicing.

3.2.5 The Contractor shall protect equipment, material, and fixtures at all times. He shall replace all equipment, material, and fixtures which are damaged as a result of inadequate protection.

3.2.6 Prior to starting and during progress of work, examine work and materials installed by others as they apply to work in this division. Report conditions which will prevent satisfactory installation.

3.2.7 Start of work will be construed as acceptance of suitability of work of others.

3.3 Interruption of Service: Before any equipment is shut down for disconnecting or tie-ins, arrangements shall be made with the Architect/Engineer and this work shall be done at the time best suited to the Owner. This will typically be on weekends and/or holidays and/or after normal working hours. Services shall be restored the same day unless prior arrangements are made. All overtime or premium costs associated with this work shall be included in the base bid.

3.4 Phasing: Provide all required temporary valves, piping, ductwork, equipment and devices as required. Maintain temporary services to areas as required. Remove all temporary material and equipment on completion of work unless Engineer concurs that such material and equipment would be beneficial to the Owner on a permanent basis.

3.5 Cutting and Patching: Contractor shall provide all cutting and patching of all holes, chases, sleeves, and other openings required for installation of equipment furnished and installed under
this section. Utilize experienced trades for cutting and patching. Obtain permission from Architect/Engineer before cutting any structural items.

3.6 **Equipment Setting:** Bolt equipment directly to concrete pads or vibration isolators as required, using hot-dipped galvanized anchor bolts, nuts and washers. Level equipment.

3.7 **Painting:** Touch-up factory finishes on equipment located inside and outside shall be done under Division 15. Obtain matched color coatings from the manufacturer and apply as directed. If corrosion is found during inspection on the surface of any equipment, clean, prime, and paint, as required.

3.8 **HVAC Protection:** The Contractor shall protect all HVAC equipment from both dust and odors and seal all duct, pipe and equipment openings with plastic. Prevent dust, debris and foreign materials from entering the ductwork, piping and equipment. If the HVAC system is operated during construction, the Contractor shall install and maintain temporary filters over grilles and openings. The filtration medium must have a rating of MERV 8 or better. If an unducted plenum over the construction zone must be used, the Contractor shall isolate it by having all ceiling tiles in place. The Contractor shall check for leaks in the return ducts and air handlers and make needed repairs promptly.

3.8.1 The Contractor shall replace all filtration media just before occupancy, installing only a single set of final filtration media.

3.9 **Clean-up:** Thoroughly clean all exposed parts of apparatus and equipment of cement, plaster, and other materials and remove all oil and grease spots. Repaint or touch up as required to look like new. During progress of work, contractor is to carefully clean up and leave premises and all portions of building free from debris and in a clean and safe condition.

3.10 **Start-up and Operational Test:** Start each item of equipment in strict accordance with the manufacturer's instructions; or where noted under equipment specification, start-up shall be done by a qualified representative of the manufacturer. Alignment, lubrication, safety, and operating control shall be included in start-up check.

3.11 **Climate Control:** Operate heating and cooling systems as required after initial startup to maintain temperature and humidity conditions to avoid freeze damage and warping or sagging of ceilings and carpet.

3.12 **Record (As Built) Drawings:**

3.12.1 Upon completion of the work, record drawings shall be prepared as described in the General Conditions, Supplementary Conditions, and Division 1.

3.13 **Acceptance:**

3.13.1 **Punch List:** Submit written confirmation that all punch lists have been checked and the required work completed.

3.13.2 **Training:** Submit training syllabi prior to training for owner review.
3.13.3 **Instructions:** At completion of the work, provide a competent and experienced person who is thoroughly familiar with project, for one day to instruct permanent operating personnel in operation of equipment and control systems. This is in addition to any specific equipment operation and maintenance training.

3.13.4 **Operation and Maintenance Manuals:** Furnish four complete manuals bound in ring binders with Table of Contents, organized, and tabbed by specification section.

- Detailed operating instructions and instructions for making minor adjustments.
- Complete wiring and control diagrams.
- Routine maintenance operations.
- Manufacturer's catalog data, service instructions, and parts lists for each piece of operating equipment.
- Copies of approved submittals.
- Copies of all manufacturer's warranties.
- Copies of test reports and verification submittals.

3.13.5 **Record Drawings:** Submit record drawings.

3.13.6 **Test and Balance Report:** Submit four certified copies. The Report shall be submitted for review prior to the Substantial Completion Inspection unless otherwise required by Division 1.

3.13.7 Acceptance will be made on the basis of tests and inspections of job. A representative of firm that performed test and balance work shall be in attendance to assist. Contractor shall furnish necessary mechanics to operate system, make any necessary adjustments and assist with final inspection.

3.13.8 **Control Diagrams:** Frame under glass and mount on equipment room wall.
This is a sample cover sheet. Use one for each shop drawing.

ARCHITECT/ENGINEER: Moses & Associates, Inc.
CONTRACTOR: XYZ Construction
SUBCONTRACTOR: ABC Mechanical Contractor
SUPPLIER: Jones Supply Co.
MANUFACTURER: Various
DATE: 2/15/95
SECTION: 15545/Hydronic Specialties

1. Vent valves - Hoffman No. 62
2. In-line air separators - Bell & Gossett RL-4
3. Diaphragm type compression tanks - Bell & Gossett B-200
4. Pump suction diffusers - Bell & Gossett ED-3
5. Triple duty valves - Bell & Gossett 3D-4S
6. Shot feeders - J. Woods No. 2
7. Pressure relief valves - Watts No. 6
8. Pressure reducing valves - Bell & Gossett No. 7

END OF SECTION
SECTION 15112/FUSES 600 VOLTS AND BELOW

1 GENERAL

1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification Sections, apply to work of this Section.

1.2 Division-15 Basic Mechanical Materials and Methods Sections apply to work of this Section.

1.3 Approval Submittals:

1.3.1 Product Data: Submit manufacturer's technical product data, specifications and installation instructions for each type of product indicated.

2 PRODUCTS

2.1 Acceptable Producers: Buss, Farraz Shamut, Littlefuse, Siemens.

2.2 General: Products listed herein are common to various Mechanical Specification Sections for this project and as shown on this project's Drawings.

2.3 All fuses furnished for a particular item of equipment shall be by the same producer.

2.4 Voltage Rating:

2.4.1 Provide 600 volt fuses for 277/480 volt systems.

2.4.2 Provide 250 volt fuses for 120, 208 and 240 volt systems.

2.5 Ampere Ratings: Ampere ratings of fuses shall be as required by the equipment manufacturer.

2.6 Interrupting Ratings: Interrupting ratings of fuses shall be as required by the equipment manufacturer.

2.7 Current Limitation: Current limiting fuses shall be provided where required by the equipment manufacturer.

2.8 Rejection Fuse Clips: Provide fuse with rejection feature for switches required to have the rejection feature as required by the equipment manufacturer.

3 EXECUTION

3.1 Coordinate fuse type and ampacity with fuse holder.

3.2 Provide one set of spare fuses for each item of equipment requiring fuses. Spare fusing shall be provided within weatherproof containers for long-term storage. Spray paint container with the wording “Spare Fuses” and “Name of Equipment” on the side.

END OF SECTION

FUSES 600 VOLTS AND BELOW

REV. 1/2/14

15112.1
SECTION 15115/ELECTRIC MOTORS

1 GENERAL

1.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Section apply to work of this Section.

1.2 This section is a Division 15 Basic Mechanical Materials and Methods section, and is part of each Division 15 section making reference to motors specified herein.

1.3 Extent of motors required by this section is indicated on drawings and/or specified in other Division-15 sections.

1.4 Comply with the requirements of Division 16.

1.5 UL Compliance: Comply with applicable UL standards pertaining to motors.

1.6 Approval Submittals:

1.6.1 Product Data: When required by other Division-15 sections, submit manufacturers standard product data sheets for each type of motor provided. Submit with Division-15 section using the motors, not as a separate submittal. Mark data sheet with arrows indicating product being supplied and list by unique descriptive name all motors to which each data sheet applies. Clearly indicate type, service factor, rpm, duty cycle, voltage, phase, nominal full load efficiency, power factor and insulation class. Field verify and coordinate mounting and frame requirements for matching the drive.

1.7 O&M Data Submittals: Submit a copy of approval submittals. Submit operation and maintenance data for each type of motor. Include these data in O&M Manual. Submit two copies of nameplate data sheet for each motor. One copy shall be included with the O&M Manual and a second copy shall be inserted in a waterproof pouch or bag and attached to the motor. Nameplate data sheets shall be typed or neatly printed and shall include all data on the motor nameplate plus a unique motor description such as "AHU-3 Fan Motor", "Distribution Pump #1" or similar description.

2 PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements: Baldor Gold.

2.2 General:

2.2.1 Motors shall conform to applicable portions of NEMA Standard MG-1, Motors and Generators.

2.2.2 Motors shall be sized for the application such that when the driven equipment is operated at rated capacity the motor current will not exceed the full-load nameplate current. Service factor shall not be used in normal operation.

2.3 Motor Design:
2.3.1 **Integral Horsepower Motors:**

2.3.1.1 Motors shall be open drip-proof or totally enclosed fan cooled as shown on the drawings or listed in the Division 15 section requiring motors. Provide cast-iron frame and mounting feet.

2.3.1.2 Motors shall be three phase, 60 hertz, nominal 1800 rpm, rated at 200 volts for 208 volt systems, 230 volts for 240 volt systems and 460 volts for 480 volt systems.

2.3.1.3 Motors shall be NEMA Design B and shall have 1.15 service factor or greater at 60 hertz.

2.3.1.4 **Insulation Systems**

2.3.1.4.1 In fixed speed applications, motors shall have Class B insulation with 80°C rise over 40°C ambient.

2.3.1.4.2 For variable frequency drive (VFD) applications, motors shall have Class F insulation with 105°C rise over 40°C ambient. Motor manufacturer shall identify motors being used for VFD applications by marking the motor with a stainless steel name-plate “Inverter Duty”. Motors shall be provided with one set of thermostatic sensors.

2.3.1.5 Motor efficiencies shall be based on IEEE-112, 1984, Test Method B, as specified in NEMA Standard MG1-12.53. NEMA motor efficiency and power factor shall be clearly shown on the motor nameplate. Inverter duty motors shall have a CIV rating based on NEMA.

2.3.1.6 Motors shall be premium efficiency type and shall meet or exceed the following minimum nominal efficiencies at rated voltage. Motors must be labeled “PREMIUM EFFICIENCY” Standard efficiency motors meeting the indicated minimum efficiencies are not acceptable.

<table>
<thead>
<tr>
<th>HORSEPOWER RANGE</th>
<th>230/460 VOLT, 3 PHASE</th>
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<tbody>
<tr>
<td></td>
<td>MINIMUM NOMINAL EFFICIENCY</td>
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<tr>
<td>1 hp</td>
<td>85.5 pct.</td>
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<tr>
<td>1.5 hp</td>
<td>86.5 pct.</td>
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<td>2 hp</td>
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<td>3 hp to 5 hp</td>
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<td>7.5 hp</td>
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<td>92.4 pct.</td>
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<td>50 hp</td>
<td>94.5 pct.</td>
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<tr>
<td>60 hp</td>
<td>95.0 pct.</td>
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</tbody>
</table>
Motors 25 hp and larger which are to be installed outdoors or in other high humidity areas shall be equipped with silicone rubber space heaters. Space heaters shall be energized when motor is de-energized.

Shaft Grounding: Provide shaft grounding brushes to prevent electrical bearing damage equal to Aegis SGR by Electro Static Technology.

Fractional Horsepower Motors ¾ hp and above:

Motors shall be open drip-proof or totally enclosed fan cooled as shown on the drawings or listed in the Division 15 section requiring motors.

Motors shall be three phase, 60 hertz, nominal 1800 rpm, rated at 200, 230 or 460 volts as shown on the drawings.

Motors shall be NEMA Design B with class B insulation, unless used with variable frequency drives.

Fractional Horsepower Motors less than ¾ hp:

Motors shall be single phase, 60 hertz, rated at 120 volts with integral thermal protection, unless otherwise noted on the drawings.
2.3.3.2 Electronic Commutation: Where scheduled, provide electronic commutation (EC) motors with premounted dial control speed potentiometer, minimum of 85% efficient at all speeds with 80% usable turndown.

2.4 Overload Protection: Properly sized overload protection shall be provided for each motor. This protection may be an integral part of the motor or may be part of the motor controller and shall interrupt each ungrounded conductor.

3 EXECUTION

3.1 Motor Size and Location:

3.1.1 Size and location of motors shown on the drawings are based on a particular design and may change with a different manufacturer. Submittal of shop drawings or product literature indicating motor sizes or locations different from that designed indicates that Contractor has fully coordinated any required changes to the electrical system with other trades. Approval (if made) is on this basis and no additional cost will be allowed for any changes.

3.1.2 Contractor shall verify and make any necessary adjustments to electrical service, branch circuit wiring, branch circuit protection, overload protection, disconnect and controller (starter), or VFD based on actual nameplate data of the motors supplied prior to installation. Where applicable, connect motor winding thermostat to VFD.

3.2 Motor Voltages: Contractor shall field verify system voltage prior to ordering or installing any motors. Submittal of shop drawings or product literature indicating motor voltages indicates that Contractor has fully coordinated the motor with the electrical system and that any discrepancies have been resolved. Approval (if made) is on this basis and no additional cost will be allowed for any changes.

3.3 Motor Mounting: Adjust motor mounting as required to adjust the drive train for proper belt operation and to accommodate sheave changes or other requirements of the test and balance work.

END OF SECTION
SECTION 15610/CUSTOM AIR HANDLING UNITS

1 GENERAL

1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

1.3 Extent of air handling unit work is indicated on drawings, and schedules, and by requirements of this section.

1.4 Refer to other Division-15 sections for field-applied insulation to air handling units.

1.5 Refer to other Division-15 sections for hot and chilled water piping required in conjunction with air handling units.

1.6 Refer to other Division-15 Sections for HVAC equipment to be included as part of custom air handling units such as Air Cleaning Equipment. The scope of work included as part of custom air handling units is described in this specification and shown on the drawings.

1.7 Refer to Division-16 sections for the following work; not work of this section.

1.7.1 Power supply wiring from power source to power connection on unit. Include starters, disconnects, and required electrical devices, except where specified as furnished, or factory installed by manufacturer.

1.8 Control wiring and BAS are Siemens Owner Direct Purchase contract.

1.9 Codes and Standards:

1.9.1 AMCA Compliance: Test and rate air handling units in accordance with AMCA standards.

1.9.2 ARI Compliance: Test and rate air handling units in accordance with ARI 430 "Standard for Central-Station Air Handling Units", and ARI 410 for coils, display certification symbol on units of certified models.

1.9.3 NFPA Compliance: Provide air handling unit internal insulation, adhesives, and coatings having flame spread rating not over 25 and smoke developed rating no higher than 50; and complying with NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems."

1.9.4 UL and NEMA Compliance: Provide electrical components required as part of air handling units, which have been listed and labeled by UL and comply with NEMA Standards.

1.9.5 NEC Compliance: Comply with National Electrical Code (NFPA 70) as applicable to installation and electrical connections of ancillary electrical components of air handling units.
1.10 Approval Submittals:

1.10.1 Product Data: Submit manufacturer's technical product data as follows showing dimensions, weights, capacities, certified ratings, sound data, fan performance with operating point clearly indicated, motor electrical characteristics, gauges and finishes of materials, and installation instructions. Submit assembly-type drawings showing unit dimensions, weight loadings, required clearances, construction details, and field connection details.

1.10.1.1 Air handling unit components including casings, fans, coils and all related equipment and piping.

1.10.2 Shop Drawings: Submit shop drawings showing the actual installation of each air handling unit, and other related HVAC equipment in plan and section. Show coil access, filter access, motor access, controls access and access to any other components requiring service. Show coordination with all related structural components of the building and show all unit supports. Show relationship to drains and other equipment. Show every electrical device and control panel with code-required service clearance clearly marked.

1.10.2.1 Units mounted in mechanical rooms.

1.10.2.2 Units mounted outside.

1.11 Test Reports and Verification Submittals:

1.11.1 Submit field Leakage Test Report.

1.11.2 Submit field Vibration Analysis Report.

1.11.3 Submit factory Sound Data Report.

1.12 O&M Data Submittals:

1.12.1 Wiring Diagrams: Submit manufacturer's electrical requirements for power supply wiring to air handling units. Submit manufacturer's ladder-type wiring diagrams for interlock and control wiring. Clearly differentiate between portions of wiring that are factory-installed and portions to be field installed.

1.12.2 Maintenance Data: Submit a copy of approval submittals. Submit maintenance instructions, including instructions for lubrication, filter replacement, motor and drive replacement, and spare parts lists. Include these data and wiring diagrams in O&M manuals.

2 PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide air handling units of one of the following:

Governair
Ventrol
Haakon
2.2 General:

2.2.1 Factory fabricated air handling units shall be constructed of solid steel, formed outer panels secured to a welded steel frame or to a bolted steel frame. Outer panels shall be removable without affecting the structural integrity of the units. All units shall come complete with a structural steel base around the entire perimeter. Construction shall result in a leakage rate of less than 1% of rated flow at maximum operating pressure.

2.2.2 Multiple sectioned units shall be as a single factory assembled piece (except where shipping limitations prevent) demounted into modular sections in the field by Contractor. Units shall be furnished with sufficient gasket and bolts for reassembly in the field by Contractor.

2.2.3 All units shall be UL or ETL listed.

2.2.4 All coil connections, access doors and drains shall be coordinated with field piping and electrical connections.

2.2.5 Unit exterior dimensions shall be the size as shown on the drawings.

2.3 Testing:

2.3.1 Provide a field leak test on all units after assembly at design operating static pressure. Cabinet leakage shall not exceed 1% of specified air flow on the positive and negative sides of the unit. Furnish a written report to the Engineer.

2.3.2 All fans shall be factory balanced to limit vibration across operating range to less than 0.2 in/sec, or as recommended by manufacturer, whichever is more stringent. Measure vibration in all three planes in the “filter out” condition. Provide field vibration analysis and submit report. AHU manufacturer shall provide vibration test results

2.3.3 Sound Data: The manufacturer shall submit sound data in accordance with industry standards and AMCA 300.

2.4 Unit Base / Framework

2.4.1 Unit base frame shall be structural steel cross members. The base shall include “Double Bottom” insulated floor. Base rails shall be fitted with lifting lugs at the corners of the unit or section (if demounted) with thermal break between floor and base assembly. The unit base shall be heavy duty walk-on floor made from 16 gauge Type 304 stainless steel checkerplate. Seams in floor shall be water tight.

2.5 Exterior Casing:

2.5.1 The air handling unit casing shall be 4" thick double wall construction of the “no-through-metal” design. The casing structure shall incorporate insulating thermal breaks as required so that, when fully assembled, there exists no path of continuous unbroken metal to metal conduction from
inner to outer surfaces. Provide required structural frame and casing to withstand 8" static pressure. Panels shall be gasketed and secured to the frame with screws. Outer panels shall be constructed from 16 gauge G-90 galvanized steel. The exterior panels for indoor units shall be finished with industrial air dried (alkyd) enamel.

The exterior panels for outdoor units shall be coated with a painting system designed for long term corrosion.

The paint for outdoor units shall meet or exceed the following criteria:

- (ASTM B-117) salt spray resistance 5% salt at 95 degrees F. Passes 750 hr.
- (ASTM D-2247) humidity resistance 100% fog at 95 degrees F. Passes 1,000 hr.

2.5.2 Enclosures: Provide weather resistant, outdoor type enclosures for units exposed to weather. Pitch tops of casings for water run-off. Provide gaskets for access doors and assembled joints, caulk weather-tight.

2.6 Unit Casing Insulation: Insulation shall not be disturbed if panels are removed. Entire unit shall be insulated with 4" thick insulation. The closed cell foam injected insulation shall have an effective thermal conductivity (C) of 0.15 BTU in/sq.ft. degree F (panel R value of R13). Insulation shall be UL 723 fire and smoke rated. Fiberglass insulation is not acceptable.

2.7 Liners: The units shall be double wall construction and include a 20 gauge solid galvanized liner in the entire unit except for supply fan section. The liner in the supply fan section shall be perforated galvanized steel construction. Insulation facing perforated inner wall shall be covered by a Mylar or Tedlar film with spacers to preserve the acoustical properties of the assembly.

2.8 Condensate Pan: Condensate drain pan shall be 16 gauge Type 304 stainless steel. All pans shall be insulated “Double Bottom” construction with welded corners. The drain shall be sloped in two planes for complete drainage with no standing water in the unit. Drain connections shall be standard 1¼” NPT connection. Drain pans shall be provided under all sections.

2.9 Access Doors: The unit shall be equipped with double wall insulated, hinged access doors. Doors shall be located upstream and downstream of all coils and in all filter, access plenum and fan sections. The access doors shall include an extruded aluminum door frame. The doors shall be at least 5'-0" high (or the maximum allowed by unit size) with a minimum width of 24". The fan section door shall be large enough to allow the removal of the fan wheel and motor without disassembly of the unit casing. The door frame shall incorporate a built in thermal break barrier along with a gasket around the entire perimeter of the door. The door shall be hinged using a minimum of three heavy duty butt hinges. There shall be two heavy duty Ventlok (260/310) handles (or equal) per door. Provide an ETL, UL 1995, and CAL-OSHA approved tool operated safety latch on all fan section access doors. All doors shall have windows.

2.10 Louvers: Provide outdoor air louver full size of unit intake per Division-15 Section 15875 “Wall Louvers”.

2.11 Fans: Provide types PF (Plug Fans) SWSI Class II or Class III fans with airfoil blades. Fans shall be equipped with 200,000 hour L-10 life pillow block bearings. The fan shaft shall be turned, ground and polished solid steel rated at maximum rpm below critical speed. Fan wheel and
2.11.1 Fan wheels and scrolls shall be steel or aluminum epoxy coated after fabrication, but prior to balancing.

2.11 Fan Array System:

2.11.1 General: The system shall consist of multiple, direct driven, arrangement 4 plenum fans constructed per AMCA requirements for the duty specified, (Class I, II, or III). All fans shall be selected to deliver the specified airflow quantity at the specified operating total static pressure and specified fan/motor speed. The array shall be selected to operate at a system total static pressure that does not exceed 90% of the specified fan’s peak static pressure producing capability at the specified fan/motor speed. The quantity of fans shall be as shown in the schedule on the drawings. All motors shall be standard pedestal mounted type, TEAO, T-frame motors selected at the specified operating voltage, RPM, and efficiency as specified or as scheduled elsewhere. All motors shall include isolated bearings or shaft grounding. Each fan/motor assembly shall be dynamically balanced to meet AMCA standard 204-96, category BV-5, to meet or exceed Grade 2.5 residual unbalance.

2.11.2 The fan array shall be designed to meet the sound data shown in the schedule on the drawings. Manufacturers shall submit acoustical data for review and approval indicating that the proposed equipment can meet all specified performance requirements without impacting the equipment performance or design features including duct connection location, unit weights, acoustical performance, number of fans or specified total fan HP for each fan array. Submittals which indicate a higher connected fan HP than specified or scheduled will not be accepted.

2.11.3 The fan array shall consist of multiple direct drive fans and motors, spaced in the air way tunnel cross section to provide a uniform air flow and velocity profile across the entire air way tunnel cross section and components contained therein. The quantity of fans shall be as shown on the schedule on the drawings.

2.11.4 The fan array shall produce a uniform air flow profile and velocity profile within the airway tunnel of the air handling unit not to exceed the specified cooling coil and/or filter bank face velocity when measured at a point 12" from the intake side of the fan array intake plenum wall and a distance of 48" from the discharge side of the fan intake plenum wall.

2.11.5 Each fan/motor assembly shall be removable through a 24" wide free area access door.

2.11.6 Each fan/motor will be provided with an individual back-draft damper similar to a Ruskin BD6 Heavy Duty 6063T5 extruded aluminum frame, .125" wall thickness. The frame shall have
galvanized steel braces on all corners. Blades shall be minimum .070" wall thickness 6063T5 extruded aluminum. Bearings shall be corrosion resistant long life synthetic. Linkage shall be ½” tie bar with stainless steel pivot pins.

2.11.7 Each fan assembly shall be supplied with a complete flow measuring system which indicates airflow in cfm. The flow measuring system shall consist of a flow measuring station with four static pressure taps and four pressure sensing tubes located on the face and in the throat of the fan inlet cone. The flow measuring station shall not obstruct the inlet of the fan and shall have no effect on fan performance (flow or static) or sound power levels.

2.11.8 **Flow Readout:**

2.11.8.1 The flow monitor system shall be unit mounted in a panel containing individual motor overloads and disconnects for each motor in the array. Panel shall include “Motor Fault” lights for each individual motor. Panel shall include signal to BAS of motor fault.

2.12 **Electrical Requirements:**

2.12.1 **General:** Provide disconnect switches, motor overload protection, relays, contactors, wiring and conduit complying with the requirements of Division 16.

2.12.2 **Motors:** Provide premium high efficiency motors per Division 15, Basic Materials and Methods section, “Electric Motors”. Provide motors suitable for inverter duty.

2.12.3 **Fan Array Systems with Variable Frequency Drive Control:** Reuse existing VFD.

2.13 **Coils:**

2.13.1 All coil assemblies shall be tested under water at 315 psig and performance shall be certified under ARI Standard 410. Coils exceeding the range of ARI standard rating conditions shall be as noted on a coil computer printout. Select chilled water coils for design performance and to maintain heat transfer down to 25% flow.

2.13.2 Type WC (water coils) shall be constructed of seamless copper tubing mechanically expanded into fin collars. Fins shall be the die formed plate type fabricated of aluminum. Headers shall be seamless copper with die formed tube holes. Maximum fin spacing is 12 fpi. Connections shall be male pipe thread (MPT) Schedule 40 red brass.

Vents and drains shall be provided for complete coil drainage. Coils shall be suitable for 250 psig working pressure. Intermediate tube supports shall be supplied on coils over 44” fin length with an additional support every 42” multiple thereafter. Coils shall have 5/8" O.D. x .025" wall copper tubes, .010" fins and 16 gauge Type 304 stainless steel casing. Coil tracks and supports shall be fabricated of Type 304 stainless steel.

2.13.3 Provide multiple sections of coils split vertically and horizontally. Coil length shall not require more than 60" of clear space in front of unit for removing coil. Safe off all spaces between coils to prevent air from bypassing coils.
2.13.4 Coatings: Provide Seacoast coating on all coils to prevent corrosion. Manufacturer’s standard corrosion-resistant coating is acceptable.

2.13.5 Provide insulated intermediate stainless steel drain pans beneath each section of cooling coil above bottom section. Provide a drain tube from each intermediate pan down to the base drain pan. Intermediate drain pans shall extend a minimum of 8" past the downstream face of coil. Insulate casings at offset coils to prevent moisture blowoff.

2.14 Filter Boxes: Provide boxes to accommodate filters of the type indicated on the schedule. Factory fabricated filter sections shall be of the same construction and finish as the units. Side service filter sections shall include hinged access doors. Internal safing shall be permanently mounted by the manufacturer as required to prevent air bypass around the filters.

2.14.1 Filter Gauge: Each filter bank shall be furnished with one (1) Magnehelic filter gauge (Dwyer Series 2000).

2.15 Filters: Provide filters. Refer to Division - 15 Section 15885 “Air Cleaning Equipment” for filters required for air handling units.

2.16 Ducted connections: Provide bellmouth connection of sizes shown on the drawings.

2.17 Lighting: Provide vapor-proof light fixtures and switches for all accessible sections. All lighting and switches shall be prewired to a single point 120 V electrical connection.

2.18 Drains: Provide a capped washdown drain in each section.

2.19 Smoke Dampers: Provide smoke dampers per Division-15 Section 15855 “Ductwork Accessories”. Coordinate unit mounted smoke dampers location for proper access to motors.

3 EXECUTION

3.1 Examine areas and conditions under which air handling units are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 General: Install air handling units where indicated, in accordance with equipment manufacturer's published installation instructions, and with recognized industry practices, to ensure that units comply with requirements and serve intended purposes. The work of this section includes all equipment necessary for a complete, packaged system, including work and equipment specified in other Division 15 sections.

3.3 Coordination: Coordinate with other work, including ductwork, floor construction, and piping, as necessary to interface installation of air handling units with other work. Fabricate and ship units in sections as required to install units at the jobsite. Coordination of opening size and scheduling is the Contractor's responsibility.

3.4 Access: Provide access space around air handling units for service as indicated, but in no case less than that recommended by manufacturer.
3.5 **Electrical Wiring:** Install electrical devices furnished by manufacturer but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal to electrical Installer. Verify that electrical wiring installation is in accordance with manufacturer's submittal and installation requirements of Division-16 sections. Do not proceed with equipment start-up until wiring installation is acceptable to equipment installer.

3.5.1 **Service Lights:** Provide dedicated circuits for service lights.

3.5.2 **Convenience Receptacles:** Provide dedicated circuit for convenience receptacles.

3.6 **Piping Connections:** Refer to Division-15 HVAC sections. Provide piping, valves, accessories, gauges and supports as indicated. Eliminate strain on coil headers. Provide trapped, insulated, DWV copper condensate drain piping full size from the drain connection as shown and extend independently to disposal point as part of this section's work. Provide individual trap from each drain.

3.7 **Insulate all piping within the AHU in accordance with Division 15 section “Insulation for HVAC Equipment and Piping”**. Repair all cracks in insulation or covering at site after unit has been set.

3.8 **Duct Connections:** Refer to Division-15 Air Distribution sections. Provide ductwork, accessories, and flexible connections as indicated.

3.9 **Brush** out fins on all coils.

3.10 **Testing:** Upon completion of installation, start-up and operate equipment to demonstrate capability and compliance with requirements. Perform field Leakage Tests and Vibration Analysis. Field correct malfunctioning units, then retest to demonstrate compliance.

3.11 **Spare Parts:**

3.11.1 Provide spare fuses per Section 15112.

3.12 Provide two days of time for a factory trained service technician for site coordination of the installation of any unit requiring field assembly.

3.13 **Owner Training:** Provide 8 hours in two sessions.

**END OF SECTION**
SECTION 15855/DUCTWORK ACCESSORIES

1 GENERAL

1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

1.3 Extent of ductwork accessories work is indicated on drawings and in schedules, and by requirements of this section.

1.4 Refer to other Division-15 sections for testing, adjusting, and balancing of ductwork accessories; not work of this section.

1.5 Codes and Standards:

1.5.1 SMACNA Compliance: Comply with applicable portions of both SMACNA "HVAC Duct Construction Standards, Metal and Flexible" and "Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems".

1.5.2 NFPA Compliance: Comply with applicable provisions of NFPA 90A "Air Conditioning and Ventilating Systems" pertaining to installation of ductwork accessories.

1.6 Approval Submittals:

1.6.1 Product Data: Submit manufacturer's technical product data for each type of ductwork accessory, including dimensions, capacities, and materials of construction; and installation instructions as follows:

1.6.1.1 Smoke dampers (Owner Direct Purchase)

1.6.1.2 Duct access doors

1.6.1.3 Flexible connections

1.6.2 O&M Data Submittals: Submit manufacturer's maintenance data including parts lists for smoke dampers. Include this data, product data, and a copy of approval submittals in O&M manual.

2 PRODUCTS

2.1 Smoke Dampers:

2.1.1 Smoke Dampers: Provide motorized smoke dampers, UL classified under UL-555S, of types and sizes indicated. Construct frame and blades of galvanized steel. Provide sleeves. Provide damper assembly complete with electric operator that will fail safe if fire interrupts operational power. Provide for remote testing or resetting capability after response to smoke detector operation. Entire assembly shall be rated at least leakage class II (10 CFM/sq. ft. at 1" w.g. at 250°F). Basis
of design:

Systems to 1,500 FPM duct velocity or 2.5" w.g.: Class II Ruskin SD36.

Systems over 1,500 FPM duct velocity or 2.5" w.g.: Class I, airfoil blades, Ruskin SD60.

2.1.2 Acceptable Manufacturers: Subject to compliance with requirements, provide smoke dampers by Air Balance, Inc., American Warning & Ventilating, Arrow Louver and Damper, Penn Ventilator Co., Ruskin Mfg. Co., or Greenheck.

2.2 Turning Vanes: Provide manufactured or fabricated single wall turning vanes and vane runners, constructed in accordance with SMACNA "HVAC Duct Construction Standards".

2.3 Duct Access Doors:

2.3.1 General: Provide duct access doors of size indicated, or as required for duty indicated.

2.3.2 Construction: Construct of same or greater gauge as ductwork served. Provide insulated doors for insulated ductwork. Provide flush frames for uninsulated ductwork, extended frames for externally insulated duct. Provide one side hinged, other side with one handle-type latch for doors 12" high and smaller, 2 handle-type latches for larger doors.

2.3.3 Acceptable Manufacturers: Subject to compliance with requirements, provide access doors by Air Balance, Inc., Duro Dyne Corp., Ruskin Mfg. Co., or Ventfabs, Inc.

2.4 Flexible Connections:

2.4.1 General: Provide flexible duct connections wherever ductwork connects to vibration isolated equipment. Construct flexible connections of neoprene-coated flameproof fabric crimped into duct flanges for attachment to duct and equipment. Make airtight joint. Provide adequate joint flexibility to allow for thermal, axial, transverse, and torsional movement, and also capable of absorbing vibrations of connected equipment.

2.4.2 Acceptable Manufacturers: Subject to compliance with requirements, provide products by one of the following: Duro Dyne Corp., Flexaust (The) Co., or Ventfabs, Inc.

3 EXECUTION

3.1 Examine areas and conditions under which ductwork accessories will be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 Installation of Ductwork Accessories:

3.2.1 Install ductwork accessories in accordance with manufacturer's installation instructions, with applicable portions of details of construction as shown in SMACNA standards, and in accordance with recognized industry practices to ensure that products serve intended function.
3.2.2 Install balancing dampers at all main ducts adjacent to units in return air, outside air and where indicated.

3.2.3 Install control dampers in the outside air duct and return air duct for each air handling unit. Damper actuators provided by control contractor.

3.2.4 Install turning vanes in square or rectangular 90° elbows in supply, return, and exhaust air systems, and elsewhere as indicated.

3.2.5 Install access doors to open against system air pressure, with latches operable from either side, except outside only where duct is too small for person to enter. Install on entering air side of duct-mounted coils. Install at smoke detectors. Install at control dampers. Opening size shall be per NFPA 90A for servicing smoke detectors. Provide label with 1-1/2" letters to indicate location of fire protection devices.

3.2.6 Install flexible connections in ductwork such that the clear length of the connector is approximately two inches. Provide thrust restraints as required. Flexible material shall not be so slack as to take a definite concave or convex shape during fan operation.

3.2.7 Coordinate with other work, including ductwork, as necessary to interface installation of ductwork accessories properly with other work.

3.2.8 Install smoke dampers on both sides of air handling units (to include filters) in units over 15,000 cfm. All locations are shown on the mechanical drawings. Install in strict accordance with the manufacturer's printed instructions, NFPA 90A, and UL 555S. Basis of design installation is detailed on the drawings.

3.3 Smoke Dampers: Notify Engineer at least 24 hours in advance of ceiling installation or chase closure so that complete smoke damper installation can be observed. A copy of the manufacturer's printed installation instructions shall be available at the site.

3.4 Operate installed ductwork accessories to demonstrate compliance with requirements. Test for air leakage while system is operating. Repair or replace faulty accessories as required to obtain proper operation and leakproof performance.

3.5 Adjusting And Cleaning:

3.5.1 Adjusting: Adjust ductwork accessories for proper settings.

3.5.2 Final positioning of manual dampers is specified in Division-15 section "Testing, Adjusting, and Balancing". However, the system shall be left functional with all dampers open or throttled.

3.5.3 Cleaning: Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

END OF SECTION

DUCTWORK ACCESSORIES

REV. 4/30/14

15855.3
SECTION 15875/WALL LOUVERS

1     GENERAL

1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

1.3 Extent of wall louver work is indicated by drawings and schedules, and by the requirements of this section.

1.4 Refer to other Division-15 sections for ductwork and duct accessories.

1.5 AMCA Compliance: Test and rate louvers in accordance with AMCA Standard 500. Provide AMCA certified rating seal.

1.6 Approval Submittals:

1.6.1 Product data: Submit manufacturer's technical product data for louveres including: model number, accessories furnished, construction, finish, mounting details, performance data. [Submit Miami-Dade NOA.]

1.6.2 Sample: Submit a sample louver section which indicates frame corner construction, blade construction, typical welds and specified finish.

1.7 O&M Data Submittals: Submit maintenance data, including cleaning of finishes and a copy of approval submittals. Include in O&M manual.

2     PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements, submit products by Ruskin, Arrow, American Warming and Ventilating, Greenheck, or AMCA labeled approved equal.

2.2 General: Except as otherwise indicated, provide manufacturer's “stormproof” louveres where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation. Provide Kynar 500 coated, corrosion resistant finish.

2.3 Substrate Compatibility: Provide louveres with 4 inch frame, flange and sill extension piece that are compatible with adjacent substrate, and that are specifically manufactured to fit into air handling unit openings with accurate fit and adequate support, for weatherproof installation.

2.4 Materials: Construct of 0.125 inch thick aluminum extrusions, ASTM B 221, Alloy 6063-T5. Weld units or use stainless steel fasteners. Blades shall be positioned at 45° angle.

2.5 Louver Screens: On inside face of exterior louveres, provide ½” square mesh anodized aluminum wire bird screens mounted in removable extruded aluminum frames.
2.6 Stationary Louvers (Hurricane Zone): Provide extruded aluminum, wind-driven rain resistant, drainable louvers, approved by Miami-Dade. Basis of design: ELF-6375DXD.

2.6 Stationary Louvers (Hurricane Zone): Provide extruded aluminum, wind-driven rain resistant, drainable louvers, approved by Miami-Dade. Basis of design: EME 6625D.

3 EXECUTION

3.1 Install where shown in air handling unit intake in accordance with the manufacturer's printed instruction. Exercise care to prevent scratches.

END OF SECTION
SECTION 15885/AIR CLEANING EQUIPMENT

1 GENERAL

1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 Division-15 Basic Mechanical Materials and Methods sections apply to work of this section.

1.3 Extent of air cleaning work required by this section is indicated on drawings and schedules, and by requirements of this section.

1.4 Refer to Division-15 air handling units section for filter boxes associated with air handling units; not work of this section.

1.5 Refer to Division-15 duct accessories section for duct access door work required in conjunction with air filters; not work of this section.

1.6 Codes and Standards:

1.6.1 NFPA Compliance: Comply with applicable portions of NFPA 90A pertaining to installation of air filters.

1.6.2 UL Compliance: Comply with UL Standards pertaining to safety and performance of air filter units.

1.6.3 ASHRAE Compliance: Comply with provisions of ASHRAE Standard 52 for method of testing, and for recording and calculating air flow rates.

1.7 Approval Submittals:

1.7.1 Product Data: Submit manufacturer's technical product data including dimensions, weights, required clearances and access, flow capacity including initial and final pressure drop at rated air flow, efficiency and test method, fire classification, and installation instructions.

1.7.1.1 Roughing filter rack

1.7.1.2 Extended surface panel filters (prefilters)

1.7.1.3 Extended surface filters

1.7.1.4 Filter gauges

1.8 O&M Data Submittals:

1.8.1 Maintenance Data: Submit maintenance data and spare parts lists for each type of filter and rack required. Include this data, product data and a copy of approval submittals in O&M manual.
2 PRODUCTS

2.1 Acceptable Manufacturers: Subject to compliance with requirements, provide air cleaning equipment of one of the following: American Air Filter Co., Continental Air Filter Co., Cambridge Filter Corp., Farr Co., Filtrete or approved equal.

2.2 Extended Surface Panel Filters (Prefilters): Provide factory fabricated pleated, dry flat panel; replaceable air filters of sizes indicated, with 2" thick UL Class 2 material. The media shall be bonded to the fiberboard casings to prevent leakage. Provide filters with rated face velocity of 500 fpm, initial resistance of not greater than 0.30" w.g., final rated resistance of 1.0" w.g., average arrestance of 90%, and average dust spot efficiency of 30% (MERV 7). Basis of design: American Air Filter AM-AIR 300X.

2.3 Extended Surface Filters: Provide high efficiency factory-fabricated, dry, supported, extended surface filters with holding frames; where shown, in sizes indicated. Equip with UL Class 1 water resistant fibrous media material formed into 4" deep V-shaped pleats and held by self-supporting wire frames. Construct holding frames of 18-gauge galvanized steel and provide suitable fasteners and gasketing to hold media and media frame and to prevent unfiltered air passing between media frames and holding devices. Design holding frames which are suitable for bolting together into built-up filter banks. Provide filters with rated face velocity of 500 fpm, initial resistance of 0.60" w.g. with 90-95% dustspot efficiency and final rated resistance of 1.2" w.g. Basis of design: American Air Filter Varicel.

2.4 Provide Dial-Type Magnehilic filter gauges for each filter bank graduated to read between 50% and 75% of the scale range when the filters are fully loaded. Provide pressure tips, tubing, gauge connections and mounting bracket.

2.5 Filter Size: All filters of each type shall be the same size for the entire project.

2.6 Roughing Filter Rack: Provide Type 304 stainless steel filter rack and stainless steel frame mounted immediately downstream of the intake smoke damper. Fabricate with cross linked supporting bars 6"x6" to support Owner provided roll media.

3 EXECUTION

3.1 General: Comply with installation requirements as specified elsewhere in these specifications pertaining to air filters housing/casings, and associated supporting devices.

3.2 Install air filters and holding devices of types indicated, and where shown; in accordance with air filter manufacturer's written instructions and with recognized industry practices; to ensure that filters comply with requirements and serve intended purposes.

3.3 Locate each filter unit accurately in position indicated, in relation to other work. Position unit with sufficient clearances for normal service and maintenance. Anchor filter holding frames securely to substrate.

3.4 Coordinate with other work including ductwork and air handling unit work as necessary to interface installation of filters properly with other work.

AIR CLEANING EQUIPMENT

15885.2
3.5 Install filters in proper position to prevent passage of unfiltered air. Install Owner furnished roll media in roughing filter rack.

3.6 Install air filter gauge pressure tips upstream and downstream of filters to indicate air pressure drop through air filter. Mount filter gauges on outside of filter housing or filter plenum, in accessible position. Adjust and level included gauges for proper readings.

3.7 Construction Filters: No systems that include filters shall be operated at any time unless the complete specified prefilters and after filters are installed. Maintain all filters during construction. Install clean prefilters and after filters just prior to test and balance work.

3.8 Spare Parts:

3.8.1 Provide a complete spare set of filters for each system where filters are installed. Where the design includes prefilters and after filters, provide only prefilters. Obtain receipt from Owner that spare filters have been received.

END OF SECTION
AIR HANDLING UNIT SCHEDULE

MARK | AHU-A

BASIS OF DESIGN | INGENIBRIA
MODEL | CAH-2-NM-PU
TYPE | HORIZONTAL DRAW-THROUGH
LOCATION | MECH ROOM 118A

FAN SECTION
FAN TYPE | PLUG FAN
FAN QUANTITY | 4

DRIVE TYPE | DIRECT DRIVE
FAN CFM | 4,875
TOTAL CFM | 19,500
TSP (IN WG) | 3.5
ESP (IN WG) | 1.3

MOTOR SECTION
EACH MOTOR BHP | 3.89
EACH MOTOR HP | 5
MOTOR SPEED (RPM) | 1800
VOLT-PHASE | 480V-3

DRIVE | VFD (EXISTING)
ROUGHING FILTER SECTION
LOCATION | INTAKE LOUVER
RACK | STAINLESS STEEL
SIZE | ROLL
DIRTY P/D (IN WG) | 0.25

PRE FILTER SECTION
TYPE | 2" PANEL
EFFICIENCY (%) | 30
SIZE (INCH) | 24x24
QUANTITY | 12
DIRTY P/D (IN WG) | 0.7

AFTER FILTER SECTION
TYPE | (1) 4"
EFFICIENCY (%) | 90
SIZE (INCH) | 24x24
QUANTITY | 12
DIRTY P/D (IN WG) | 1.0

SOUND DATA (DB)
63 HZ | 88
125 HZ | 89
250 HZ | 98

AHU EQUIPMENT
INTAKE LOUVER | (2) YES
SA SMOKE DAMPER | (2) YES
OA SMOKE DAMPER | (2) YES
PRE-HEAT COIL | (4) YES
COOLING COIL | (3) YES
TRAP Dimensions (A/B - IN) | (5)

SCHEDULE NOTES
(1) REFER TO AHU ELEVATIONS FOR LOCATION
(2) REFER TO MANUFACTURER REQUIREMENTS

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AIR HANDLING UNIT COOLING COIL SCHEDULE

MARK | CC-A

LOCATION | (1) AHU-A
TYPE | CHW
EWT (°F) | 45
LWT (°F) | 55
TRAP DEPTH (IN) | (2) -
FACE DAMPER | (1) NO

DESIGN CONDITIONS
SUPPLY AIR CFM | 19,500
OUTDOOR AIR CFM | 19,500
EAT DB/WB (°F) | 91/78
LAT DB/WB (°F) | 54/54
FACE VELOCITY (FPM) | 489
SENSIBLE CAPACITY (BTU/H) | 777,000
TOTAL Capacity (BTU/H) | 1,634,000
CHW FLOW (GPM) | 326
MAX WATER PD (FT HD) | 13.2
MAX AIR PD (IN WG) | 0.75
MIN ROW/MAX FPI | 6/12

SCHEDULE NOTES
(1) REFER TO AHU ELEVATIONS FOR LOCATION
(2) REFER TO MANUFACTURER REQUIREMENTS

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AIR HANDLING UNIT PREHEAT COIL SCHEDULE

MARK | PH-A

LOCATION | AHU-A
TYPE | HHW
EWT (°F) | 180
LWT (°F) | 160

DESIGN CONDITIONS
AIRFLOW | 19,500
EAT DB (°F) | 37
LAT DB (°F) | 54
FACE VELOCITY (FPM) | 1,125
TOTAL CAPACITY (BTU/H) | 370,000
HHW FLOW (GPM) | 36.2
MAX WATER PD (FT HD) | 3.4
MAX AIR PD (IN WG) | 0.29
MIN ROW/MAX FPI | 1/6

SCHEDULE NOTES
(1) REFER TO AHU CC COIL SCHEDULE
(2) REFER TO AHU PH COIL SCHEDULE
(3) REFER TO MANUFACTURER REQUIREMENTS
(4) PROVIDE PANEL WITH INDEPENDENT MOTOR OVERLOADS
TO ALLOW SINGLE POINT POWER CONNECTION. SMOKE DAMPERS
SHALL BE POWERED VIA UNIT POWER

Date: 02/13/2015
M&A Job # 14190
Figure: M1
**PRICE SHEET**

From: ____________________________ (Company Name/Name & Title of Authorized Agent)

To: UNIVERSITY OF FLORIDA  
Purchasing Services  
971 Elmore Drive  
Elmore Hall Rm101  
Gainesville, FL 32611

The undersigned, hereinafter called "Bidder", being invested with the authority of his/her employer, and having read the Documents for the Bid, as well as the Specifications for the Bid, entitled:

ITB15KO-142 Belle Glade AHU Equipment Package IFAS Project 15063

and having familiarized himself/herself with all conditions affecting and governing the specifications, pricing and delivery of the equipment, hereby proposes to furnish the service as per the specifications, in strict compliance with the Specification Page, Bid Documents, Addenda and any other documents relating thereto on file with Purchasing Services and, if awarded the Contract, agrees to abide by the pricing and delivery terms as per the Documents and as stated herein, for the sums enumerated on this page.

**TOTAL PRICE:** $__________________________

**LEAD TIME:** __________________________

I have carefully prepared this Bid from contact documents described above, I have full authority to make such statements and submit this Bid in (my) (its) (their) behalf, and all statements are true and correct.

______________________________  ____________________________
(Signature) (Printed or typed)

______________________________
(Address, City State, Zip)

______________________________  ____________________________
(Telephone) (Date)