

SUBMIT BID TO:
PURCHASING DEPARTMENT
UNIVERSITY OF FLORIDA
971 ELMORE DRIVE, PO BOX 115250
GAINESVILLE, FL 32611-5250
Phone: (352) 392-1331 - FAX: (352) 392-8837
Web Address: www.purchasing.ufl.edu

UF UNIVERSITY of FLORIDA
INVITATION TO BID
Commodity
Acknowledgment Form

Page 1 of 25 Pages, plus Attachment		BID WILL BE OPENED: May 28, 2015 at 2:00PM and may not be withdrawn within 45 days after such date and time. Questions are due by May 18, 2015 EOB		BID NO. ITB15KO-150			
UNIVERSITY MAILING DATE: 05/07/2015		PURCHASING AGENT KO/CS		BID TITLE: Greenhouse Control System			
VENDOR NAME							
VENDOR MAILING ADDRESS		REASON FOR NOT SUBMITTING BID					
CITY - STATE - ZIP CODE		<p align="center">POSTING OF BID TABULATIONS</p> <p>Bid tabulations with intended award(s) will be posted electronically for review by interested parties at www.purchasing.ufl.edu and will remain posted for a period of 72 hours excluding Saturdays, Sundays, or state holidays. Failure to file a protest in accordance with Board of Governors (BOG) Regulation 18.002 or failure to post the bond or other security as required in the BOG regulations 18.002 and 18.003(3), shall constitute a waiver of protest proceedings.</p>					
AREA CODE	TELEPHONE NO.						
_____	FAX NO.						
_____	WEB ADDRESS						
	EMAIL ADDRESS						

I certify that this bid is made without prior understanding, agreement, or connection 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 it may now or hereafter acquire under the Anti-trust laws of the United States and the University for price fixing relating to the particular commodities or services purchased or acquired by the University. At the University's discretion, such

assignment shall be made and become effective at the time the purchasing agency tenders final payment to the vendor.

AUTHORIZED SIGNATURE (MANUAL)

NAME AND TITLE (TYPED)

GENERAL CONDITIONS

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 envelope 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. NOTE: Bid tabulations will be posted electronically at www.purchasing.ufl.edu. Bid tabulations will not be provided by telephone.

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 experiencing problems in obtaining payment from the University, 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 offered or shipped as a result of this bid shall be a new, current standard production model available at the time of this bid. All containers shall be suitable for storage or shipment, and all prices shall include standard commercial packaging.

(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 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.

7. INTERPRETATIONS/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 provision.

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. **FAILURE OF THE 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 purchaser at once, indicating in writing the specific regulation which requires an 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 ordinances, rules and regulations shall govern development, submittal and evaluation of all bids received in response hereto and shall govern any and all claims and disputes which may arise between person(s) submitting a bid response hereto and the University, by 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, orders, awards, costs and expenses, including attorney's fees, and also all claims on account of damages 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 third persons, arising 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, and 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 bid level at the prices bid in this invitation. If additional quantities 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 define any warranty 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 vendor's expense. Each individual sample must be labeled with vendor's name, manufacturer's brand name and number, bid number and item reference. Request for return of samples shall be accompanied by instructions which include shipping authorization and name of carrier and must be received with the bid. If instructions are not received within this time, the commodities shall be disposed of by the University.

19. INSPECTION, ACCEPTANCE AND TITLE: Inspection and acceptance will be at destination unless otherwise provided. Title and risk of loss or damage of all items shall be the responsibility of the contract supplier until accepted by the University, unless loss or damage results from negligence by the University. The contract supplier shall be responsible for filing, processing and collecting all 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 delivering carrier's Bill of Lading.
- (b) Report damage (Visible or Concealed) to the carrier and contract supplier confirming such reports in writing within 15 days of delivery, requesting that the carrier inspect the damaged merchandise.
- (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 unpatented invention, process, or article manufactured or used in the performance of the contract, including its 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 comprising this ITB or resulting contract, as applicable, shall govern in the following order of precedence: 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 names, trade names, brand names, information and/or catalog numbers listed in a specification are for information and not intended to limit competition. If bids are based on equivalent products, indicate on 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 submitted with a previous bid will not satisfy this provision. The vendor shall also explain in detail the reasons why the proposed equivalent will meet the specifications and not be considered an exception thereto. The University of Florida reserves the right to determine acceptance of item(s) as an approved equivalent. Bids which do not comply with these requirements are subject to rejection. Bids lacking any written indication of intent to quote an alternate brand will be received and considered in complete compliance with the specifications as listed on the bid form.

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 reimburse the University 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 procurement 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 material which the responding vendor might consider to be confidential 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 SUBLET:** In accordance with Class B Printing Laws and Regulations "Printing shall be awarded only to printing firms. 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 will be rejected if there is reason to believe that collusion exists between vendors. 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 picked up and delivered by the printer or his representative, unless otherwise specified. Upon request, materials will be forwarded by registered mail.
- (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. Such return is a condition of the contract and payment will not be made until return is affected.

END OF SECTION

NON-TECHNICAL SPECIFICATIONS

1. **AWARD** - Award will be made on an "All-or-None Offer Total Offer" basis. Any contract awarded pursuant to this Bid/RFP will be awarded to the single best bidder/proposer or to none at all. Award will be made based on the lowest Base Bid or lowest Base Bid and Alternate. It will be up to the University to determine if the Alternate will be awarded.
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. **RIGHT TO TERMINATE** - In the event that any of the provisions of a contract resulting from the bid award are violated by the successful bidder, the University may serve written notice upon such bidder of its intention to terminate the contract. Such notice is to state the reason(s) for such intention to terminate the contract, and unless within ten (10) days after serving such notice upon the bidder, such violation shall cease and satisfactory arrangements for correction are made, the contract shall, upon expiration of said ten (10) days, cease and terminate, but the liability of such bidder and his surety for any and all such violations(s) shall not be affected by any such termination.
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. **AS SPECIFIED** - A purchase order will be issued to the successful bidder with the understanding that all items delivered must meet the specifications herein. Items delivered not as specified will be returned to the vendor, at no expense to the University, and vendor will be required to deliver items meeting specifications or be held in default in accordance with General Condition #22 of this bid.
6. **F.O.B. POINT** - The F.O.B. Point shall be destination. Exact delivery point will be indicated on the Purchase Order.
7. **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.
8. **DEBRIS** - Successful bidder shall be responsible for the prompt removal of all debris which is a result of delivery, assembly, or installation.
9. **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:

- 1- Evidence that bidder is licensed by the appropriate government agency to perform the work specified.
- 2- Experience record showing bidder's training and experience in similar work.
- 3- 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.

10. 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.

11. INVITATION TO BID FORM - All bids must be submitted on the University of Florida Invitation to Bid Acknowledgment Form with one (1) complete original bid 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. The Invitation to Bid Acknowledgement Form must be completed, signed and submitted with your sealed bid.

12. 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:

- 1- 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.
- 2- 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 may be required.
- 3- 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-1) must be filed prior to March 1 of each year.
- 4- 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 _____

- 13. 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 posted on Purchasing Services website. Direct all inquiries to Karen Olitsky kolitsk@ufl.edu.

All addenda will be posted to our web site only:

<http://www.purchasing.ufl.edu/vendors/schedule.asp>

Vendors who want the addenda supplied to them in another form must notify the Purchasing Agent listed above of that request. Otherwise, it will be the vendor's responsibility to check the web site for any additional information and addenda concerning this ITB.

Any questions/requests for clarification regarding this Invitation to bid will be entertained through May 18, 2015, EOB. Any questions/requests for clarification received after this date and time may not be answered.

- 14. INSPECTION OF FACILITIES** - It is the bidder's responsibility to become fully informed as to the nature and extent of the work required and its relation to any other work in the area, including possible interference from academic or other University activities. Arrangements for bidder's inspection of campus facilities and/or activity schedules may be secured from Ronnie Cooper, 352-294-3821 or rlcooper@ufl.edu.

- 15. CONTRACTOR'S LIABILITY INSURANCE** - The Contractor shall purchase from and maintain with a company or companies lawfully authorized to do business in Florida such insurance as will protect the Contractor from claims set forth below which may arise out of or result 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 provide the ISO Commercial General Liability policy for general liability coverages. All liability policies shall provide that the University is a named additional insured as to the operations of the Contractor under the University-Contractor Agreement and shall provide the Severability of Insured's Provision. The University shall be exempt from, and in no way liable for, any sums of money which may represent a deductible in any insurance policy. The payment of

such deductible shall be the responsibility solely of the Contractor and/or Subcontractor providing such insurance. This insurance shall protect the Contractor from the following claims:

- a. Claims under worker's or workmen's compensation, disability benefit and other similar employee benefit acts which are applicable to the work to be performed;
- b. Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- c. Claims for damages because of bodily injury, sickness or disease, or death of any person other than the contractor's employees;
- d. Claims for damages insured by usual personal injury liability coverage including claims which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;
- e. Claims for damages, other than to the work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- f. Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and
- g. Claims involving contractual liability insurance applicable to the Contractor's obligations in the A.I.A. General Conditions.

The required Contractor's Liability Insurance shall be written for limits of not less than \$100,000 per person, \$300,000 per occurrence. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of work until date of final payment and termination of any coverage required to be maintained after final payment. The required insurance shall include contractual liability insurance applicable to the contractor's obligations in the A.I.A. General Conditions, and coverage for the "XCU" exposure.

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 Statutes.

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 at least the amount of \$100,000.00 per person, \$300,000.00 per occurrence.

Certificates of Insurance - The Contractor shall file with the University Certificates of Insurance acceptable to the University prior to the commencement of work. These Certificates and the insurance policies which are required shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the University. If any of the foregoing insurance coverages are required to remain in force after final payment an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment as required by Subparagraph 9.10.2, A.I.A. General Conditions. The Contractor shall furnish one copy of the Certificate of Insurance which shall be dated and show the name of the insured Contractor, the

specific job by name and job number, the name of the insurer, the number of the policy, its effective date, and its termination date.

Property Insurance - The Contractor shall purchase and maintain from a company or companies lawfully authorized to do business in Florida, property insurance, written on a Builder's Risk completed value form, in the amount of the initial contract sum, as well as, subsequent modifications for the entire work at the site on a replacement cost basis. Such property insurance shall be maintained, unless otherwise provided in the contract documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in the A.I.A. General Conditions or until no person or entity other than the University has an insurable interest in the property required to be covered, whichever is earlier. This insurance shall include interests of the University, the Contractor, and Sub-contractors in the work.

Property insurance shall be on a Special Causes of Loss form or its equivalent, including reasonable compensation for Architect/Engineer's services and expenses required as a result of such insured loss. The Contractor shall purchase and maintain the Building Ordinance Endorsement.

If the property insurance provides deductibles the Contractor shall pay costs not covered because of such deductibles.

Before an exposure to loss may occur, the Contractor shall file with the University a copy of each policy that includes the required Property Insurance coverages. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the University.

A loss insured under property insurance shall be adjusted by the University as fiduciary and made payable to the University as fiduciary for the insureds, as their interests may appear. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors in similar manner.

The University as fiduciary shall, upon occurrence of an insured loss, deposit in a separate account proceeds so received, which the University shall distribute in accordance with such agreement as the parties in interest may reach, or in accordance with an award based on a resolution of a matter in dispute, in which case the procedure shall be as provided in the A.I.A. General Conditions. If after such loss no other special agreement is made, replacement of damaged property shall be covered by appropriate Change Order.

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. **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.
18. **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.
19. **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
20. **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 street address as shown on the Invitation to Bid Acknowledgment form. Include the bid number, bid opening date and time, and company name on the outer most envelope.
21. **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).
22. **FEDERAL DEBARMENT** - 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).

23. 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.

24. 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
- C-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.

<u>Division</u>	<u>Asbestos Representative</u>	<u>Telephone</u>
Physical Plant	Assoc. Dir. Physical Plant Asst. Dir. Health Ctr.	(352) 392-7793
Health Center	Physical Plant Asst. Dir. of Housing	(352) 392-4417
Housing	Maint. Serv. Maintenance	(352) 392-2161
Reitz Union	Superintendent	(352) 392-1614
IFAS	Engineer	(352) 392-6488

- 25. 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.
- 26. AMERICANS WITH DISABILITY ACT** - If special accommodations are needed in order to attend the bid opening, contact Cheri Spitzer 352-392-1331 x211 or email at cspitzer@ufl.edu, three business days prior to the bid opening.
- 27. 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.
- 28. 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, bidder, proposer and contractor are used synonymously in this RFP/ITB unless otherwise indicated.
- 29. ERRORS** - The University is not liable for any errors or misinterpretations made by the proposer in responding to this Invitation to Bid.
- 30. VENDOR'S EXPENSE** - All proposals submitted in response to the ITB 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.
- 31. CONTRACTOR SHALL IMPLEMENT** - a drug-free workplace program in accordance with the requirements of Section 440.102, Florida Statutes.
- 32. 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.
- 33. 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.

Attestation of Principal Place of Business

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 preferences(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: _____

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-150 Greenhouse Control System

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.

BASE BID: \$ _____

ADD ALTERNATE: \$ _____

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)

Environmental Horticulture Greenhouse Controller

System Specifications

- 1) Control for 14 greenhouse zones in base bid; 7 zones in alternate add bid; zone break down to follow.
- 2) Ability to re-use existing line-level control equipment in greenhouses is required; it is assumed that all devices are working properly, all line voltage contacts are installed, and control points are as listed below.
- 3) System description
 - A. **General Features:** The control system shall be designed specifically for commercial and research horticultural and agricultural use with all equipment and enclosures suitably designed for the electrical and climate conditions of these applications. The control system shall be of the latest state-of-the-art technology and design. At a minimum, each major component in the system shall contain
 1. Gas discharge tubes, transorbs, and fusing to protect each power and communications connection against lightning and electrical transient damage.
 2. Metal Oxide Varistors, gas discharge tubes, or transorbs to snub all control outputs, prevent contact arcing damage, and to protect outputs against lightning and electrical transient voltage damage.
 3. Electrical isolation for each major system component to prevent ground loops caused by ground potential differences.
 - B. **Controllers and I/O modules** shall be designed for simple 'plug-in' type replacement by non-technical staff in emergency situations. All other major system components (network repeaters, network power supplies) shall be of single board design with quick plug-in connections for ease of replacement.
 - C. The Control system shall use a distributed architecture to limit the consequences of most component failures to the functionality of the actual failed component, or at worst, to the functions of associated components that are immediately dependent on the failed component.
 - D. The control system shall be powered from Class 2 transformers for enhanced system safety.
 - E. All control system components shall be tested to comply with radiated or conducted emissions and immunity as defined in the European commercial CE standards.
 - F. **Spare Parts:** The control system vendor shall include a spare parts kit containing all major control system components to support immediate board level replacement of all single board failures.

- G. The control system shall be supplied fully configured for the stated application. Factory support (via internet connection) shall be provided for system commissioning and to adjust and tune the control system as new challenges present over the course of at least one production season.

H. **Physical Architecture:**

1. **PC Server:** The control system shall be accessed and managed through a PC server that provides the primary operator interface and other housekeeping tasks such as Data Archiving and backup of configuration and settings. This PC also acts as a 'server' to remote PC clients accessing the system through network, modem, or Internet connections. This PC is connected to a network of dedicated controllers where all control and monitoring functions are performed. All control functions shall be independent of the PC.
2. **Controllers:** Controllers shall be designed for real-time equipment control and include real-time clocks, memory backup (minimum two days of memory and clock backup without power) and watchdog monitoring and restart technology.
 - a. Each controller shall have sufficient memory buffer capacity to prevent the loss of archival data during interruptions of the server PC operation.
 - b. Controllers shall be distributable throughout the control area to minimize wiring expense.
 - c. Controllers shall support Ethernet connection using OSI Level 2 Data Link layer. For larger systems, it shall be possible to separate control segments into multiple domains.
 - d. Controller shall support serial connection to Modbus RTU devices
 - e. Each controller shall monitor all direct inputs and adjust all output operations once per second to ensure a timely response to changing process conditions. Control loop refresh rates shall not degrade as the system expands.
 - f. For situations where applications can accept slower refresh rates, each controller shall be capable of sensor input multiplexing.
 - g. Each controller shall be completely configurable. The number and type of control applications running on each controller shall be limited only by the physical memory limits of the controller.

I. **Input and Output Interfacing: Input / Output (I/O) Modules**

1. Each Controller shall be supported by its own dedicated Power and Communications Network, connecting the controller to the Input / Output (I/O) modules required for all control and monitoring functions.
2. The I/O network shall allow free wiring topologies, and provide both communications and power distribution over a single 18 gauge twisted pair cable. The I/O network shall be expandable through the addition of optional repeaters to create multiple network segments capable of covering many kilometers of total network length.
3. A single Class 2 power supply shall provide regulated, protected, and filtered power for all control equipment connected to each I/O network segment. I/O
4. Power Supplies shall provide automatic restarts of I/O segments once a power upset (over/undercurrent, short circuit) condition has cleared.
5. Each controller shall support up to 32 I/O modules. These I/O modules may be mounted centrally or distributed close to the sensors and equipment to minimize

wiring runs, reduce installation costs, increase system reliability, and provide convenient access to equipment overrides and optional local access and display interfaces.

6. Each I/O module shall be electrically isolated from all others to prevent ground loops caused by ground potential differences.

J. **Inputs** The system shall support the widest possible range of sensors and instrumentation for control feedback and monitoring.

1. Both Analog and Digital input channels shall be provided.
2. Each input channel shall be programmable to support a range of sensor types including 0-5 volts, 4-20 ma DC and 0-5 volts AC.
3. Each input channel shall be (18 bit or higher) resolving to at least 10 microvolts to support the direct connection of low signal voltage sensors such as thermocouples and photo-diodes.
4. The input current type (AC or DC) shall be switchable in the software.
5. Standard climate monitoring shall include air temperature, humidity, PAR light, and optional CO₂ levels.
6. Climate sensing modules shall be provided with an on-board 16 character by 2-line LCD display of the current readings.

K. **Outputs:** Outputs shall be fully configurable and individually addressable. All output relay signals shall be dry contact or Class 2 low voltage. No line loads shall be switched directly through the output relay contacts. Output states shall be updated once per second. Digital output resolution to 0.1 second, refreshed once per second. Scan rate shall not degrade as a function of system size or load,

Outputs shall have the following features:

1. **Digital:**

- a. Form A:, Form C, 2-Speed, and Tri-State Floating outputs
- b. Indicator lights shall denote computer control status
- c. Manual overrides for testing and emergency operation
- d. Low frequency PWM (Pulse Width Modulation) control to 0.1 second resolution
- e. Normally Open, Normally Closed, and Dry Contact switching configurations
- f. Contact Ratings shall be: 3.2 amps @ 24V (AC or DC) (Class 2
- g. 5000 volts transient isolation between the field wiring and the control hardware
- h. Varistors across output contacts shall be provided to reduce arcing and transient voltage damage and extend contact life

2. **Analog** output signal specifications:

- a. **Frequency** - 50% duty cycle signal using one of four selectable ranges: (0 to 65535 Hz), (0.0 to 6553.5Hz), (0.00 to 655.35Hz), (0.000 to 65.535Hz)
- b. **Current**, 0 to 20mA with 12-bit (1 part in 4096, or approximately 5uA) resolution. Typically the output start will be set to 4mA to produce the industry standard 4 to 20mA range. Output terminals shall provide both sinking and sourcing of the current...
- c. **Voltage**, 0 to 5V and 0 to 10V with 12-bit resolution (1.22mV and 2.44mV respectively)

- d. **Pulse Width Modulation** (positive and negative - pulses to 0.001 second resolution using modulation periods from 0.01 to 655.35 seconds with 0.01 second resolution.
- L. **Local Access and Display Interfaces:** Each I/O module shall support an optional 16 character by 2-line LCD operator interface for local display of critical measurements and control status and user input buttons for changing operator set points. Each display shall support up to 64 user selectable parameters from the controller parameter list.
- M. **Control Capabilities:** The control system shall provide monitoring and control applications designed specifically for the management of horticulture and other bio-climates. These shall include, but not be limited to:
1. Automated control of climates, irrigation/fertigation systems, and nutrient injection systems. For all applications it shall be possible to configure safety limits, overrides, and custom operational rules to suit the circumstances.
 2. Heating, ventilating, and air conditioning equipment control capabilities for all types of greenhouses, growth chambers, growth rooms, and ancillary buildings.
 3. Specialized control capabilities for greenhouse hydronic heating systems including boiler management, heat buffering systems, and modulating pipe temperature management.
 4. Control applications for modulating passive ventilation systems including compensation for wind speed and direction, wind safety lockouts, and rain/snow position limits.
 5. Psychrometric air/water/energy relationship calculations including enthalpy, dew point, vapor pressure and vapor pressure deficit.
 6. Climate energy balance calculations for predictive management of indoor/outdoor energy fluxes.
 7. Equipment management strategies for monitoring and optimizing energy use and extending equipment life.
 8. Environmental models for crop management including radiation (PAR and total energy), DLI (Daily Light Integral), temperature, relative humidity, humidity deficit (or VPD), and CO₂
 9. Zone Heat Index calculations for worker safety.
 10. Predictive DLI (Daily Light Integral) control algorithms for achieving consistent DLI targets regardless of changes in ambient weather or seasonal sunlight levels.
 11. Multi-spectral lighting control (including individual regulation of light intensity per wavelength)
 12. Direct Ethernet control interface for Heliospectra LED lamps.
 13. Geographic and seasonal weather simulations based on imported data sets and modelled weather data.
 14. Seasonal light intensity models to simulate dawn to dusk light levels for any geographic region or season.
 15. Management of multiple diurnal setpoint periods with configurable ramping intervals between.
 16. Multiday setpoint strategies for managing full term cropping parameters.
 17. Multi-day climate averaging strategies for improving crop timing, maximizing solar inputs and minimizing the use of purchased energy.
 18. Irrigation models including Penman-Monteith evapo-transpiration calculations for predicting crop water usage.
 19. Wireless sensor interfacing capabilities including Decagon soil sensors.

20. Irrigation/Fertigation strategies (and associated dosing equipment) including multiplexed single-element dosing.
21. Custom configuration of sequential control operations (for example, to replace and integrate stand-alone PLC applications).
22. Automated spray application software including triggering logic, pre-spray and post spray timing, fully coordinated with heating, ventilating and irrigation equipment.
23. Load cell monitoring arrays (and associated equipment) for crop irrigation monitoring, evapotranspiration research, and whole-plant fresh weight studies (wilt tolerance, growth rates etc.).
24. Supervisory control capabilities for safe two-way interaction with external entities such as crop growth models or other automated equipment systems.
25. Direct support for managing Modbus RTU equipment and instrumentation systems.
26. Sensor multiplexing software used for sampling gases or liquids from multiple zones or chambers using a common sensor array.
27. In addition to the above, each controller shall be capable of monitoring and controlling a wide range of custom applications through simple re-configuration of general-purpose control function blocks contained in the controller firmware.

N. **Monitoring, Alarming, and Data Recording:** The system shall be capable of continuously recording all settings, readings, and other significant parameters as distinct recorded channels to support the complete reconstruction of any control or monitoring situation. The system shall be capable of recording samples at up to one-second intervals with reading sample resolutions for each channel. The system shall be capable of collecting several million data points per controller, per day. A user configurable graphical and tabular display utility shall be provided for visualization and analysis of the recorded data. It shall be possible to overlay any recorded data channel against other recorded data channels. A utility shall be provided for exporting selected data sets for use in other programs such as Microsoft Excel.

Each controller shall be configured with a standard set of alarms for monitoring the control hardware and communications, and the status of the controlled equipment and monitored processes. The controllers shall store and buffer recorded information to onboard SD card storage. Recorded information shall be automatically backed up and archived onto a Server PC for retrieval and display in a graphical user interface.

Additionally, the controller software shall contain sufficient alarm function blocks to allow the user to develop hundreds of application-specific alarm conditions for defining when control processes go out of bounds. The user shall be able to logically link several alarm conditions together to build more intelligent alarm models. The user shall be able to assign a minimum of five alarm 'annunciation levels' to manage the relative importance of each alarm condition.

The system shall provide continuous logging of all changes initiated by operator actions including the time, the operator account, the PC name and location and the nature of each change.

- O. **Software and General Performance Features:** The control system shall be connected to a 'Server' PC that provides all housekeeping functions and full operator access to the entire control system.

- P. **Operator Interface** The Sever PC system shall provide a full graphical user interface that can be interactively modified by users to suit their particular needs without resorting to external development or compiling. All user settings and system configuration settings are viewed and changed through this interface. Authorized users may:
 - 1. Monitor and supervise all control points
 - 2. Add/delete control points and edit the system database
 - 3. Edit all parameter user labels
 - 4. Change control set points, timing parameters, and the tuning of control loop coefficients
 - 5. Enter programmed start/stop schedules
 - 6. View and respond to alarms and messages
 - 7. Modify control logic and sequences of operation
 - 8. Upload/download program updates, backups, databases, etc.
 - 9. Set data acquisition and storage parameters
 - 10. Modify graphic screen designs including manipulation of static and dynamic display objects for providing graphic representations of control processes and status displays.
 - 11. Create custom user screens, each with any combination of 'live' parameters collected from elsewhere in the system.

- Q. The Server PC shall automatically collect archival data from the buffers in each controller and store it on local hard drives for long term Data Reporting and auditing.

- R. The server PC shall rip and filter the archived data to quickly present historical information in an interactive graphical environment. It shall be possible to overlay any combination of recorded parameters onto the same graph window for comparison purposes. The user shall be able to pan and zoom the view-port and search for maximum, minimum, average, or raw data values. Recorded data shall be represented both graphically and in tabular format and can be exported to external applications.

- S. The Server PC shall be connected to the Internet through a persistent Internet connection. This connection shall be used by the Controls vendor to provide timely remote customer support and system diagnostics. This connection shall also provide remote system access for system operators.

- T. The Server PC shall support local system access and one concurrent remote access using a client-server architecture. Remote desktop or other remote PC access options shall not be acceptable for security and performance reasons. The number of concurrent users can be increased through the purchase of an optional multi-user software license. The number of

concurrent users shall be limited only by the total system bandwidth. Remote clients shall have full password authorized access to the control system features. The remote client must perform at similar refresh rates as compared to the server.

- U. **Security and Password Control Access to the** control system shall be password protected. Each system user shall be assigned a user account that can be used to limit access to appropriate tasks and to control the areas of the system that can be accessed or modified.
- V. For enhanced security, remote users must possess a matching copy of the operator access software, the correct IP address and firewall configurations (User controlled), and a control system password before a connection can be made.
- W. The control system shall have the following attributes:
 - 1. Automatically control greenhouse climate with anticipatory control software.
 - 2. Proportionally modulate climate control equipment to maintain setpoint targets.
 - 3. Control heating and cooling equipment with user definable settings for each piece of equipment in each greenhouse climate zone.
 - 4. Separate night temperature under lights.
 - 5. Computer based control on 5 periods per day: dawn, day, dusk, night and DIF.
 - 6. Control equipment on time, sunlight, temperature, humidity, astronomical time shift and other user definable settings.
 - 7. Capacity to control fog/mist for humidity.
 - 8. Capacity to control irrigation.
 - 9. Capacity to control vents based on wind direction, wind speed, rain, snow, outside temp, time, astronomical time shift, and load and save programs.
 - 10. User selection of different levels and equipment type alarms.
 - 11. Manual override at PC computer, at computer interface panel with low voltage manual/auto/off or manual/auto/ open/close relay switching, at thermal overload kill switch protection and at circuit breaker panel.
 - 12. Battery backup for history and set points at both the greenhouse computer interface panel and at the PC computer.
 - 13. PC user interface for control override, settings, monitoring, graphical tracking, dial out of alarms and 25 load and save programs for greenhouse climate zone settings.
 - 14. Capacity to computer control fertilizer dosing unit(s) on desired EC and pH levels.

Z. The control system shall monitor and control in all zones in base bid, as follows:

Monitoring

- a. Zone Air Temperature
- b. Zone Relative Humidity
- c. PAR Light
- d. CO₂
- e. Floor hot water sensor
- f. Outside sunlight
- g. Wind speed and direction
- h. Outside Temperature
- i. Rain Detection/ Snow sensor

j. Status of Controlled Equipment

Controlling – per zone

- a. 1 floor heat mixing valve and 1 HW circulation pump
- b. 1 vent to proportionately modulate based on percent demand
- c. 5 stages of cooling
- d. 1 shade/heat curtain
- e. 1 irrigation boom initiate per greenhouse bay (16 total)
 - i) 1 irrigation boom initiate in the Shade House
- f. 1 circuit of H.I.D. lights in Zone 1A
- g. 1 circuit of horizontal air flow fans
- h. minimum 1 all purpose timer/spare output

Controlling - Global

- a. 4 alarm outputs for phone autodialer and other annunciation devices
- b. hot water main transport line circulation pump and mixing valve
- c. boiler shock control software
- d. 3 boiler pump and boiler enable controls

AA. THE CONTROL SYSTEM WILL PROVIDE REPORTS ON ALL ZONES

- a. Environment, Equipment Status and Weather
- b. Daily Minimums, Maximums, and Averages
- c. Daily Equipment Usage
- d. Warnings
- e. 2 days of Data Storage per computer interface panel
- f. Data storage on PC computer for entire system – limited only by harddrive space availability

BB. BASIC SYSTEM SHALL INCLUDE:

- 1. Modular multiple-zone controller system with input/output expansion modules per control system panel (ORC). One ORC operator remote cabinet per zone required. One ORC cabinet for the Headhouse, Corridor, and Boiler Room combined. ORC cabinets to be NEMA4 rated, steel, white epoxy-coated enclosures.
- 2. 1 aspirated sensor module for monitoring temperature, humidity, PAR light, and CO2 in each controlled zone. The sensor module shall provide a local display of the measured parameters.
- 3. 1 complete weather station with outside sunlight, wind speed, wind direction, rain/snow detection, and outdoor temperature sensors with sensors interface built into 22" mast assembly ready for 2-wire communications connection to the nearest ORC cabinet.
- 4. Vent controls for all zones.

5. Curtain controls for all zones.
6. Boilers and hot water heating control for all zones.
7. Pad pump and gable vent controls for all zones.
8. Line voltage equipment interface/switching in Relay Contactor Panel (RCP) panel, mounted adjacent to ORC panel in each zone, for greenhouse manufacturer supplied electric motors and pumps. RCP panels to be NEMA4 rated, steel, white epoxy-coated enclosures. Built to UL508C safety standards, tested, and UL stickered.
9. Each computer interface panel to be supplied 110 volts power for Class 2 – 24vAC-75VA transformers powering conditioned, fuse-protected, power supplies.
10. Key lock on each ORC and RCP panel.
11. A current generation PC with Intel or AMD processor (2GHz or higher) with the following:
 - a. 4 GB of more of RAM
 - b. Available USB port.
 - c. Printer connection
 - d. Hard Drive: 160 GB (or higher)
 - e. HD Video Card and Monitor: (1024 x 768, 16-bit color, or higher, recommended)
 - f. CD-RW, DVD-RW, backup device, thumb drive, or other device for running file backups and transfers.
 - g. CD or DVD Drive
 - h. Keyboard and Mouse
 - i. Sound Card and Speakers
 - j. Microsoft Windows7 operating system software
 - k. Color Printer
 - l. User manual

CC. CONTROLS AND EQUIPMENT INTERFACE PANELS:

1. Provide NEMA4 ORC Operator Remote Cabinets in each zone to contain computer controls, output relay modules with manual override switches, low voltage equipment interfacing, conditioned power supplies, UL sticker.
2. Provide separate NEMA4 RCP Relay Contactor Panels in each zone to contain line and high voltage interfacing between control system and devices, contactors, thermal overloads, control transformers, and breakers/main disconnects. Greenhouse equipment and actuators/valves to be supplied by others.
3. One zone per set of ORC and RCP panels.
4. The ORC and RCP panels in each zone may be combined into a single combination panel, which will include all internal prewiring of low voltage transformers to control outputs and relay/contactors coils, as well as prewiring of all internal line voltage power distribution wiring.
5. Provide a system with a layout possibility, as on attached sheet, that is equal or better.
6. Greenhouse computer system manufacturer to provide remote installation assistance via telephone, Internet and email communications.

- a. to inspect site and supervise installation by electrical and HVAC contractors
 - b. Greenhouse computer system manufacturer to provide remote service and support for startup, commissioning, testing, and instruction of personnel
7. Include complete as-built shop drawings and datasheets, operator and equipment manuals,

DD. ENAMEL COATED STEEL PANELS

- 1. Provide enamel coated steel panel construction, dip-bath primed and powder coated white. IP55 and NEMA 4 ratings. Door gasket made seamless foamed-in. International approvals and certificates.
- 2. Panel to have either of the following approvals:
 - a. UL
 - b. CSA
 - c. CE

EE. WARRANTY

- 1. Provide a one-year warranty on all components. FedEx or other Air Freight courier services to be used for “In and Out of Warranty” parts replacements.
- 2. Provide complete service spares kit of all critical low voltage control system components.

4)

- 5) It is assumed that Bids will exclude:
 - a. Taxes (UF is tax exempt)
 - b. Installation costs for Controller System
 - c. Onsite visits by supplier
 - d. All conduit and wire (low or high voltage); relays, breakers, or power distribution
 - e. All environmental control devices such as fans, heaters, etc.

Existing Greenhouse Zone Details (point name, control type)

1201A, 1202A-C, 1203A-D, 1204A-C, 1215

- 1) Cool 1, digital
- 2) Cool 2, digital
- 3) Cool 3, digital
- 4) Pad Door, tri-state
- 5) Heat 1, digital
- 6) Heat 2, digital
- 7) Jet Fan, digital
- 8) Pad Pump, digital

1201B

- 1) N. Ridge Vent, tri-state
- 2) S. Ridge Vent, tri-state
- 3) Shade, tri-state
- 4) Cool 1, digital
- 5) Cool 2, digital
- 6) Cool 3, digital
- 7) Pad Door, tri-state
- 8) Heat, digital
- 9) HAF, digital
- 10) Pad Pump, digital

1201C

- 1) N. Ridge Vent, tri-state
- 2) S. Ridge Vent, tri-state
- 3) Shade, tri-state
- 4) Cool 1, digital
- 5) Cool 2, digital
- 6) Cool 3, digital
- 7) Pad Door, tri-state
- 8) Heat, digital
- 9) HAF, digital
- 10) Pad Pump, digital
- 11) Notes: LEAF temp, Licor PAR, Quantum BAR, soil moisture (9), Load Cells (4) sensors, reused

1201B

- 1) Four lights, digital
- 2) Six Mist, digital

1201C

- 1) Four lights, digital
- 2) Eight mist, digital

1201 Bench Heating

- 1) Boiler, digital
- 2) 1201B Loop, digital
- 3) 1201C Loop, digital
- 4) Notes: soil temp sensors, 1 per compartment, reused

Proposed Expansion Greenhouse Zones Details

1220A, 1220B

- 1) Cool 1, digital
- 2) Cool 2, digital
- 3) Cool 3, digital
- 4) Pad Door, tri-state
- 5) Heat 1, digital

- 6) Heat 2, digital
- 7) Jet Fan, digital
- 8) Pad Pump, digital

1363

- 1) Roof, tri-state
- 2) E/W walls, tri-state
- 3) N/S walls, tri-state
- 4) Shade, tri-state
- 5) HAF, digital
- 6) Heat 1, digital
- 7) Heat 2, digital

1216-1219

- 1) Cool, digital
- 2) Heat, digital