

**TITLE PAGE**

STATE OF FLORIDA



**INVITATION TO BID**

**DOH12-049**

**Climate Control Systems Upgrade, Main and Annex Buildings  
Hillsborough County Health Department**

**Administrative Lead:**

Lori Matthews, Purchasing  
Hillsborough County Health Department  
1105 East Kennedy Blvd  
Main Building, Room 316  
Tampa, Florida 33602  
Fax: (813) 272-6249

Vendor Name \_\_\_\_\_

Vendor Mailing Address \_\_\_\_\_

City-State-Zip \_\_\_\_\_

Telephone Number \_\_\_\_\_

Email Address \_\_\_\_\_

Federal Employer Identification Number (FEID) \_\_\_\_\_

Authorized Signature (Manual) \_\_\_\_\_

Authorized Signature (Typed) and Title \_\_\_\_\_

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**TIMELINE**  
**DOH 12-049**  
**Climate Control System Upgrade, Main and Annex Buildings**  
**Hillsborough County Health Department**

EVENT	DUE DATE	CONTACTS & LOCATIONS
ITB Advertised - Released	April 8, 2013	Vendor Bid System: <a href="http://vbs.dms.state.fl.us/vbs/main_menu">http://vbs.dms.state.fl.us/vbs/main_menu</a>
Mandatory Site Visit and Pre-Bid Conference	9:00 am, ET, April 17, 2013	Hillsborough County Health Department, Main Building 1105 East Kennedy Blvd. Room 323 Tampa, FL 33602
Questions submitted in writing	Prior to 3:00 pm ET  April 19, 2013	Submit to: Hillsborough County Health Department Purchasing – Lori Matthews 1105 East Kennedy Blvd. Main Building, Room 316 Tampa, FL 33602  Fax: (813) 272-6249 E-mail: <a href="mailto:lori_matthews@doh.state.fl.us">lori_matthews@doh.state.fl.us</a>
Answers to Questions	April 22, 2013	Posted electronically via the following Internet site:  <a href="http://vbs.dms.state.fl.us/vbs/main_menu">http://vbs.dms.state.fl.us/vbs/main_menu</a>
Sealed Bids Due and Opened	Must be received PRIOR to: 3:00 pm ET, April 29, 2013	Hillsborough County Health Department Purchasing 1105 East Kennedy Blvd. Main Building, Room 316 Tampa, FL 33602
Anticipated Posting of Intent to Award	May 1, 2013	Vendor Bid System:  <a href="http://vbs.dms.state.fl.us/vbs/main_menu">http://vbs.dms.state.fl.us/vbs/main_menu</a>

Failure to file a protest within the time prescribed in section 120.57(3), Florida Statutes, or failure to post the bond or other security required by law within the time allowed for filing a bond shall constitute a waiver of proceedings under chapter 120, Florida Statutes.

The Florida Statutes can be accessed at [www.leg.state.fl.us/statutes/](http://www.leg.state.fl.us/statutes/)

Only filings delivered by the U.S. Postal Service, a private delivery service, in person or by fax during business hours (8:00 a.m. - 5:00 p.m., Eastern time) will be accepted. Documents received after hours will be filed the following business day. No filings may be made by email or any other electronic means. All filings must be made with the Agency Clerk ONLY and are only considered "filed" when stamped by the official stamp of the Agency Clerk. It is the responsibility of the filing party to meet all filing deadlines. The Agency Clerk's address:

Agency Clerk  
Florida Department of Health  
4052 Bald Cypress Way, BIN A-02  
Tallahassee, FL 32399-1703  
850-245-4005

Agency Clerk  
2585 Merchants Row Blvd.  
Tallahassee, FL 32399

FAX: 850-410-1448  
or 850-413-8743

## **SECTION 1.0 GENERAL INSTRUCTIONS TO RESPONDENTS (PUR1001), as amended.**

The General Instructions to Respondents are outlined in PUR 1001 which is a downloadable document incorporated in this bid by reference. There is no need to return this document with the bid response. <http://dms.myflorida.com/content/download/2934/11780>

## **SECTION 2.0 GENERAL CONTRACT CONDITIONS (PUR 1000), as amended.**

The General Contract Conditions are outlined in PUR 1000 which is a downloadable document incorporated in this bid by reference. There is no need to return this document with the bid response. <http://dms.myflorida.com/content/download/2933/11777>

## **SECTION 3.0 INTRODUCTORY MATERIALS**

### **3.1 Statement of Purpose and Programmatic Authority**

The purpose of this Invitation to Bid (ITB) is to provide all required materials, labor and equipment necessary to upgrade the climate control systems at the Hillsborough County Health Department Downtown Main and Annex Facilities, 1105 E. Kennedy Blvd., Tampa, Florida 33602.

The successful respondent must comply with all applicable Federal laws, regulations, action transmittals, program instructions, review guides and similar documentation related to the following:  
Section 20.43, Florida Statutes

### **3.2 Term**

The purchase order resulting from this Invitation to Bid to provide and install a Climate Control System Upgrade will be for approximately two (2) months beginning with the purchase order issuance date.

### **3.3 Definitions**

- "Bidder" and "Respondent" mean the entity that submits materials to the Department in accordance with these instructions, or other entity responding to this solicitation. The term Vendor may also be used.
- "Bid" and "Response" mean the complete written response of the Bidder to the Invitation to Bid, including properly completed forms, supporting documents, and attachments.
- "Business hours" means 8 A.M. to 5 P.M. Eastern Time on all business days.
- "Calendar days" counts all days, including weekends and holidays.
- "Contract" means the contract that will be awarded to the successful bidder under this Invitation to Bid, unless indicated otherwise.
- "Contractor" or "Provider" means the business entity to which a contract has been awarded by the Department in accordance with a proposal submitted by that entity in response to this ITB.
- "Department," "DOH" or "Buyer" means Department of Health and may be used interchangeably.
- "Desirable Conditions" means the use of the words "should" or "may" in this solicitation to indicate desirable attributes or conditions, but which are permissive in nature. Deviation from, or omission of, such a desirable feature or condition will not in itself cause rejection of a proposal.
- "Mandatory Requirements" or "Minimum Requirements," means that the Department has established certain requirements with respect to responses to be submitted by Bidder. The use of "shall," "must," or "will" (except to indicate simple futurity) in this solicitation indicates compliance is mandatory. Failure to meet mandatory requirements will cause rejection of the bid or termination of the Contract/Direct Order.
- "Minor Irregularity," used in the context of this solicitation and perspective Contract/Direct Order, indicates a variation from the ITB terms and conditions which does not affect the price of the bid,

or give the Bidder an advantage or benefit not enjoyed by other bidders, or does not adversely impact the interests of the Department.

- "Vendor Bid System" and "VBS" refers to the State of Florida internet-based vendor information system at [http://myflorida.com/apps/vbs/vbs\\_main\\_menu](http://myflorida.com/apps/vbs/vbs_main_menu)

## **SECTION 4.0 TECHNICAL SPECIFICATIONS**

### **4.1 Specifications**

Detailed specifications for this solicitation are provided as Attachment I in this ITB.

Detailed drawings with inherent specifications depicting actual scope of work are incorporated by reference and are to be obtained from the engineering firm for this project as indicated below:

Carastro & Associates, Inc.

Attention: George Stefanovici

2609 W. De Leon St.

Tampa, Florida 33609

Fax: (813) 874-9794

Email: [George.Stefanovici@carastro.com](mailto:George.Stefanovici@carastro.com)

### **4.2 Training**

Onsite training at a minimum of two (2) four hour sessions must be provided on the system operations, data analysis and preventative maintenance. Training dates will be determined by the Department. System tests and inspections shall be performed and recorded per the requirements outlined in the specifications

### **4.3 Literature/Manuals**

All bids must meet or exceed all conditions and specifications of the ITB. When technical documentation is required by this ITB, it is to be provided with the ITB response submission to demonstrate compliance of the product proposed with applicable technical requirements of the ITB. The Department, in its sole discretion and in the best interest of the State, may determine the acceptability of the offer through technical documentation made available to the Department as of the date and time of ITB response opening. Such authority of the Department shall in no way relieve the respondent from the ultimate responsibility of submitting the required technical documentation, nor shall any respondent assume that such documentation is otherwise available to the Department. The Department shall not be responsible for the accuracy of the technical documentation in its possession.

Equipment operation manuals are required with all equipment and devices purchased and must be furnished upon delivery at no additional cost to the Department.

### **4.4 Warranty**

All equipment and labor purchased through a bid must be warranted at minimum for one (1) year from the date of installation against defects, poor workmanship, and insufficient performance.

The warranty must include, at a minimum, replacement of any defective part at no cost to the Department.

**Warranty documentation is required with ITB response submission.**



#### **4.5 Delivery**

All work shall be performed on Saturdays and Sundays and after business hours on Monday-Friday (5:00 pm to 2:00 am). All workers shall be escorted at all times by owner's designated representatives. The vendor/contractor shall schedule appropriate downtime during state holidays. Holiday schedule listed below. All work shall be scheduled with owner's representative before proceeding.

#### **State Holiday Schedule**

**Memorial Day, Monday, May 27, 2013**

#### **4.6 Experience**

The bid response shall include contact information for three (3) entities the bidder has provided commodities or services similar to those requested in this solicitation. Vendors shall use Attachment IV, Experience Form of this ITB to provide the required information. The Department reserves the right to contact any and all entities in the course of this solicitation evaluation in order to make a fitness determination. The Department's determination is not subject to review or challenge.

#### **4.7 Responsive and Responsible**

The Bidder shall complete and submit the following mandatory information or documentation as a part of the Bid Package. Any response, which does not contain the information below, shall be deemed non-responsive.

To be considered as the vendor for this project; the following must be included as part of the Bid.

- Title Page
- Price Page (Attachment II)
- Experience Form (Attachment III)
- Required Certifications (Attachment IV)
- Subcontractor (Attachment V)
- Construction Schedule with Timeline
- State Licenses

#### **4.8 Mandatory Pre-Bid Conference and Site Visit**

A mandatory site visit and pre-bid conference will be held at the time and location indicated in the Timeline. This provides the vendors with an opportunity to tour the facilities and to ask questions and seek clarifications about the bid. Answers to the written questions submitted in accordance with the ITB Timeline will be answered at the pre-bid conference. The Department may answer any additional questions at the pre-bid conference or defer them to a later date identified in the Timeline. This is the only forum available during the competitive bid process for answering questions and making clarifications. Attendance at the mandatory site visit/pre-bid conference is a prerequisite for the acceptance of a bid response. Only vendors that complete the attendance sheet for the pre-bid conference and site visits will be considered responsive.

#### **4.9 Price Page**

The Price Page is Attachment III of this ITB. It must be completed as indicated, signed, and returned with the bid response.

#### **4.10 Commercial General Liability Insurance**

***This Invitation to Bid Special Condition takes precedence over General Conditions #35 in PUR 1000 (if applicable).***

The contractor shall secure and maintain, at its sole expense and for the duration of the contract, term insurance policies to protect himself, any subcontractor(s), and the State of Florida. The contractor shall save and hold harmless and indemnify DOH against any and all liability, claims, judgments or costs of whatsoever kind or nature for injury to, or death of any person or persons and for loss or damage to any property resulting from the use, service operation, or performance of work under the terms of this contract, resulting in whole or in part from the negligent acts or omissions of Contractor, his subcontractor, or any of the employees, agents, or representatives of the contractor or subcontractor.

- A. Worker's Compensation in accordance with applicable state laws and regulations and Employer's Liability Insurance with a limit of not less than \$100,000.
- B. Comprehensive General Liability Insurance covering all operations and services under the contract with limits of bodily injury and property damage coverage of not less than \$300,000 combined single limit issued on a per occurrence basis.
- C. Comprehensive Automobile Liability Insurance, including owner, non-owned and hired vehicle coverage of not less than \$100,000 combined single limit, issued on a per occurrence basis, if operations and services under the contract involve the use of operation of automotive vehicles on the Purchaser's premises.

Certificates of insurance coverage described above shall be furnished by the awarded vendor within five (5) days after notice of award. Failure, by the awarded vendor to furnish the required certificates within the time designated, shall cause the Department to withdraw the award and proceed with the next lowest responsive vendor.

No insurance will be acceptable unless written by a company licensed by the State of Florida Department of Financial Services, Division of Insurance Agent and Agency Services to do business in Florida, where the work is to be performed at the time policy is issued.

#### **4.11 Identical Tie Bids**

When evaluating vendor responses to solicitations where there is identical pricing or scoring from multiple vendors, the department shall determine the order of award in accordance with Rule 60A-1.011 F.A.C.

#### **4.12 Basis of Award**

A single award shall be made to the responsive, responsible bidder offering the lowest Grand Total for the Climate Control Systems Upgrade, Main and Annex Buildings plus the four (4) Alternates.

Bids that do not meet the requirements specified in this ITB will be considered non-responsive. The Department reserves the right to accept or reject any and all responses, or separable portions thereof, and to waive any minor irregularity, technicality, or omission if the Department determines that doing so will serve the State's best interests. The Department may reject any response not submitted in the manner specified by the solicitation documents. Bidders are cautioned to make no assumptions unless their bid has been deemed responsive.

287.084 Preference to Florida businesses (1)(a)When an agency, university, college, school district, or other political subdivision of the state is required to make purchases of personal property through competitive solicitation and the lowest responsible and responsive bid, proposal, or reply is by a vendor whose principal place of business is in a state or political subdivision thereof which grants a preference for the purchase of such personal property to a person whose principal place of business is in such state, then the agency, university, college, school district, or other political subdivision of this state shall award a preference to the lowest responsible and responsive vendor having a principal place of business within this state, which preference is equal to the preference granted by the state or political subdivision thereof

in which the lowest responsible and responsive vendor has its principal place of business. In a competitive solicitation in which the lowest bid is submitted by a vendor whose principal place of business is located outside the state and that state does not grant a preference in competitive solicitation to vendors having a principal place of business in that state, the preference to the lowest responsible and responsive vendor having a principal place of business in this state shall be 5 percent.

(b) Paragraph (a) does not apply to transportation projects for which federal aid funds are available.

(c) As used in this section, the term "other political subdivision of this state" does not include counties or municipalities.

(2) 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 to its own business entities whose principal places of business are in that foreign state in the letting of any or all public contracts.

(3)(a) A vendor whose principal place of business is in this state may not be precluded from being an authorized reseller of information technology commodities of a state contractor as long as the vendor demonstrates that it employs an internationally recognized quality management system, such as ISO 9001 or its equivalent, and provides a warranty on the information technology commodities which is, at a minimum, of equal scope and length as that of the contract.

(b) The subsection applies to any renewal of any state contract executed on or after July 1, 2012.

## 5.0 SPECIAL INSTRUCTIONS TO RESPONDENTS

***The following Special Instructions shall take precedence over Section 1.0 General Instructions to Respondents PUR1001 unless a statutorily required provision in the PUR 1001 supersedes.***

### 5.1 Instructions for Submittal of Bids

- Bids may be sent by U.S. Mail, Courier, Overnight, or Hand Delivered to the location indicated in the Timeline. Electronic submission of bids will not be accepted for the Invitation to Bid. ***This Special Instruction takes precedence over General Instruction #3 in PUR1001.***
- All bids must be submitted in a sealed envelope/package with the relevant ITB number and the date and time of the bid opening shall be clearly marked on the outside of the envelope/package.
- It is the bidder's responsibility to assure its bid submittal is delivered at the proper place and time as stipulated in the Timeline. The Department's clocks will provide the official time for bid receipt and opening.
- Late bids will not be opened or ranked and will be deemed non-responsive based on lateness.

### 5.2 Instruction for Formatting

- Bidders are required to complete, sign, and return the "Title Page" with the bid submittal.
- Bidders shall submit all technical and pricing data in the formats specified in the ITB.
- Submit one (1) original bid and one electronic copy of the bid on CD. The electronic copy should contain the entire bid as submitted, including all supporting and signed documents.

Materials submitted will become the property of the State of Florida and accordingly, the state reserves the right to use any concepts or ideas contained in the response.

### 5.3 Records and Documentation

To the extent that information is utilized in the performance of the resulting contract or generated as a result of it, and to the extent that information meets the definition of "public record" as defined in subsection 119.011(1), F.S., said information is hereby declared to be and is hereby recognized by the parties to be a public record and absent a provision of law or administrative rule or regulation requiring otherwise, shall be made available for inspection and copying by any person upon request as provided in

Art. I, Sec. 24, Fla. Constit and Chapter 119, F.S. It is expressly understood that any state contractor's refusal to comply with these provisions of law shall constitute an immediate breach of the contract resulting from this ITB entitling the department to unilaterally terminate the contract. The successful bidder will be required to notify the department of any requests made for public records.

Unless a greater retention period is required by state or federal law, all documents pertaining to the program contemplated by this ITB shall be retained by the successful respondent for a period of six years after the termination of the resulting contract or longer as may be required by any renewal or extension of the contract. During this period, the successful bidder shall provide any documents requested by the Department in its standard word processing format (currently Microsoft Word 6.0). If this standard should change, the successful vendor shall adopt the new standard at no cost to the department. Data files will be provided in a format directed by the department.

The successful bidder agrees to maintain the confidentiality of all records required by law or administrative rule to be protected from disclosure. The successful bidder further agrees to hold the department harmless from any claim or damage including reasonable attorney's fees and costs or from any fine or penalty imposed as a result of failure to comply with the public records law or an improper disclosure of confidential information and promises to defend the department against the same at its expense.

The successful bidder shall maintain all records required to be maintained pursuant to the resulting contract in such manner as to be accessible by the department upon demand. Where permitted under applicable law, access by the public shall be permitted without delay.

#### **5.4 Public Records and Trade Secrets**

Notwithstanding any provisions to the contrary, public records shall be made available pursuant to the provisions of the Public Records Act. If the respondent considers any portion of its response to this solicitation to be confidential, exempt, trade secret or otherwise not subject to disclosure pursuant to Chapter 119, Florida Statutes, the Florida Constitution or other authority, the respondent must segregate and clearly mark the document(s) as "**CONFIDENTIAL.**"

Simultaneously, the Respondent will provide the Department with a **separate redacted paper and electronic copy** of its response with the claimed protected information redacted and briefly describe in writing the grounds for claiming exemption from the public records law, including the specific statutory citation for such exemption. This redacted copy shall contain the Solicitation name, number, and the name of the respondent on the cover, and shall be clearly titled "**REDACTED COPY.**"

The Redacted Copy shall be provided to the Department at the same time the respondent submits its response and must only exclude or obliterate those exact portions which are claimed confidential, proprietary, or trade secret. The respondent shall be responsible for defending its determination that the redacted portions of its response are confidential, trade secret or otherwise not subject to disclosure. Further, the respondent shall protect, defend, and indemnify the Department for any and all claims arising from or relating to the determination that the redacted portions of its response are confidential, proprietary, trade secret or otherwise not subject to disclosure. If the respondent fails to submit a redacted copy with its response, all records submitted are public records and the Department shall produce all documents, data or records submitted by the respondent in answer to a public records request.

#### **5.5 Inquiries**

***This Special Instruction takes precedence over General Instruction #5 in PUR 1001.***

Questions related to this ITB must be received, in writing (either via U.S. Mail, courier, e-mail, fax, or hand-delivery), by the contact person listed below, within the time indicated in the Timeline. Oral inquiries or those submitted after the period specified in the Timeline will not be addressed.

Answers to questions submitted in accordance with the ITB Timeline and/or during a pre-bid conference, if applicable (see Section 5.4) will be posted on the MyFlorida.com Vendor Bid System web site: [http://vbs.dms.state.fl.us/vbs/main\\_menu](http://vbs.dms.state.fl.us/vbs/main_menu).

All inquiries must be submitted to:

Florida Department of Health  
Hillsborough County Health Department  
Attention: Lori Matthews  
1105 Kennedy Blvd., Room 316  
Tampa, FL 33602  
Fax: 813-272-6249  
Email: [lori\\_matthews@doh.state.fl.us](mailto:lori_matthews@doh.state.fl.us)

**NOTE: FLORIDA LAW:**

**Respondents to this solicitation or persons acting on their behalf may not contact, between the release of the solicitation and the end of the 72-hour period following the agency posting the notice of intended award, excluding Saturdays, Sundays, and state holidays, any employee or officer of the executive or legislative branch concerning any aspect of this solicitation, except in writing to the procurement officer as provided in the solicitation documents. Violation of this provision may be grounds for rejecting a response. Section 287.057(23), Florida Statutes.**

**5.6 Special Accommodations**

Any person who requires special accommodations at the DOH Purchasing because of a disability should contact the DOH Purchasing Office at (850) 245-4199 at least five (5) workdays prior to any pre-bid conference, bid opening, or meeting. If you are hearing or speech impaired, please make contact through the Florida Relay Service, which can be reached at 1-800-955-8771 (TDD).

**5.7 Minority and Service-Disabled Veteran Business - Participation**

The Department of Health encourages minority and women-owned business (MWBE) and service-disabled veteran business enterprise (SDVBE) participation in all its solicitations. Bidders are encouraged to contact the Office of Supplier Diversity at 850/487-0915 or visit their website at <http://osd.dms.state.fl.us> for information on becoming a certified MWBE or SDVBE or for names of existing businesses who may be available for subcontracting or supplier opportunities.

**5.8 Subcontractor**

The successful bidder may, only with prior written approval of the Department, enter into written subcontracts for performance of specific services under the contract resulting from this solicitation. Anticipated subcontract agreements known at the time of bid submission and the amount of the subcontract must be identified in the bid. If a subcontract has been identified at the time of bid submission, a copy of the proposed subcontract must be submitted to the department. No subcontract that the bidder enters into with respect to performance under the contract shall in any way relieve the bidder of any responsibility for performance of its contract responsibilities with the department. The department reserves the right to request and review information in conjunction with its determination regarding a subcontract request.

The successful bidder shall provide a monthly Subcontract Report (Attachment VI) summarizing all subcontracting/material suppliers performed during the prospective contract period. This report shall include the name and address, Federal Employment Identification number and dollar amount expended for any subcontractor. A copy of this form shall be submitted to the Department's Contract Manager. The Department of Health encourages the use of MWBE and SDVBE vendors for subcontracting opportunities. For assistance locating a certified MWBE or a SDVBE, contact the Department of Health's Minority Coordinator (850-245-4198) or the Office of Supplier Diversity (850-487-0915), as needed.

In accordance with Executive Order 11-116, "The provider agrees to utilize the U.S. Department of Homeland Security's E-Verify system, <https://e-verify.uscis.gov/emp>, to verify the employment eligibility of all new employees hired during the contract term by the Provider. The Provider shall also include a requirement in subcontracts that the subcontractor shall utilize the E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the contract term. Contractors meeting the terms and conditions of the E-Verify System are deemed to be in compliance with this provision."

## **6.0 SPECIAL CONDITIONS**

***The following Special Conditions shall take precedence over Section 2.0 General Contract Conditions PUR1000 unless a statutorily required provision in the PUR 1000 supersedes:***

This Special Condition takes precedence over General Conditions #31 in PUR1000.

### **6.1 Changes in Location**

The successful respondent shall notify the department in writing a minimum of one week prior to making changes in location that will affect the department's ability to contact the successful respondent by telephone or facsimile.

### **6.2 Additional Quantities**

This Invitation to Bid Special Condition takes precedence over General Conditions #5. The Department reserves the right to purchase additional quantities of the items requested in this ITB for twelve (12) months from date of award on an as needed basis up to the amount shown on the bid but not to exceed the threshold for Category Two at the prices bid in this solicitation.

### **6.3 Cost of Preparation**

Neither the Department nor the State of Florida is liable for any costs incurred by a vendor in responding to this ITB.

### **6.4 Vendor Registration**

Each vendor doing business with the State of Florida for the sale of commodities or contractual services as defined in Section 287.012, F.S., shall register in the MyFloridaMarketPlace system, unless exempted under subsection 60A-1.030, F.A.C. State agencies shall not enter into an agreement for the sale of commodities or contractual services as defined in Section 287.012 F.S. with any vendor not registered in the MyFloridaMarketPlace system, unless exempted by rule. A vendor not currently registered in the MyFloridaMarketPlace system shall do so within 5 days after posting of intent to award.

Registration may be completed at:

[http://dms.myflorida.com/business\\_operations/state\\_purchasing/myflorida\\_marketplace/vendors](http://dms.myflorida.com/business_operations/state_purchasing/myflorida_marketplace/vendors). Those lacking internet access may request assistance from MyFloridaMarketPlace Customer Service at 866-352-3776 or from State Purchasing, 4050 Esplanade Drive, Suite 300, Tallahassee, FL 32399.

## **6.5 Verbal Instructions Procedure**

The vendor shall not initiate or execute any negotiation, decision, or action arising from any verbal discussion with any State employee. Only written communications from the Department's Purchasing Office may be considered a duly authorized expression on behalf of the State. Additionally, only written communications from vendors are recognized as duly authorized expressions on behalf of the vendor.

## **6.6 Addenda**

If the Department finds it necessary to supplement, modify or interpret any portion of the bidding specifications or documents during the bidding period a written addendum will be posted on the MyFlorida.com Vendor Bid System, [http://vbs.dms.state.fl.us/vbs/main\\_menu](http://vbs.dms.state.fl.us/vbs/main_menu). It is the responsibility of the vendor to be aware of any addenda that might affect the submitted bid.

## **6.7 Certificate of Authority**

All corporations, limited liability companies, corporations not for profit, and partnerships seeking to do business with the State must be registered with the Florida Department of State in accordance with the provisions of Chapter 607, 608, 617, and 620, Florida Statutes, respectively.

## **6.8 Unauthorized Aliens**

The employment of unauthorized aliens by any vendor is considered a violation of section 274A(a) of the Immigration and Nationality Act, 8 U.S.C. § 1324a (2006). A vendor who knowingly employs unauthorized aliens will be subject to a unilateral cancellation of the resulting contract.

## **6.9 Purchase Order**

It is anticipated a purchase order will be executed to the awarded vendor by the department. Attached to this solicitation are the DOH Purchase Order Terms and Conditions (Attachment VI) which contains administrative, financial and non-programmatic terms and conditions mandated by federal or state statute and policy of the Department of Financial Services. Prospective vendors should carefully review the DOH Purchase Order Terms and Conditions and be prepared to comply, if awarded this solicitation.

Use of this document is mandatory for departmental purchase orders issued in MFMP as they contain the basic clauses required by law. The terms and conditions contained in the Purchase Order Terms and Conditions non-negotiable. The terms covered by the "DEPARTMENT APPROVED MODIFICATIONS AND ADDITIONS FOR STATE UNIVERSITY SYSTEM CONTRACTS" are hereby incorporated by reference.

## **6.10 Licenses, Permits, and Taxes**

Respondent shall pay for all licenses, permits and taxes required to operate in the State of Florida. In addition, the respondent shall comply with all Federal, State & Local codes, laws, ordinances, regulations and other requirements at no cost to the Florida Department of Health.

## **6.11 Termination**

***This Invitation to Bid Special Condition takes precedence over General Condition #22 and #23 in PUR1000.***

## **6.12 Conflict of Law and Controlling Provisions**

Any contract resulting from this ITB, plus any conflict of law issue, shall be governed by the laws of the State of Florida.

### **6.13 Conflict of Interest**

Section 287.057(17)(c), Florida Statutes, provides “A person who receives a contract that has not been procured pursuant to subsections (1)-(3) to perform a feasibility study of the potential implementation of a subsequent contract, who participates in the drafting of a solicitation or who develops a program for future implementation, is not eligible to contract with the department for any other contracts dealing with that specific subject matter, and any firm in which such person has any interest in not eligible to receive such contract. However, this prohibition does not prevent a respondent who responds to a request for information form being eligible to contract with a department.” The Department of Health considers participation through decision, approval, disapproval, recommendation, preparation of any part of a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, or auditing or any other advisory capacity to constitute participation in drafting of the solicitation. Acknowledge acceptance on Required Certifications, Attachment V.

### **6.14 E-Verify**

In accordance with Executive Order 11-116, “The provider agrees to utilize the U.S. Department of Homeland Security’s E-Verify system, <https://e-verify.uscis.gov/emp>, to verify the employment eligibility of all new employees hired during the contract term by the Provider. The Provider shall also include a requirement in subcontracts that the subcontractor shall utilize the E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the contract term. Contractors meeting the terms and conditions of the E-Verify System are deemed to be in compliance with this provision.”

### **6.15 Scrutinized Companies**

In accordance with Section 287.135, Florida Statutes, agencies are prohibited from contracting with companies, for goods or services over \$1,000,000 that are on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List which have been combined to one [PFIA List of Prohibited Companies](#) which is updated quarterly. This list is created pursuant to Section 215.473, Florida Statutes which provides that false certification may subject company to civil penalties, attorney fees, and/or costs.

### **6.16 Required Certificates**

All vendors must sign and return with its response the Required Certifications form, Attachment V. **Any vendor failing to return the Required Certifications form will be considered nonresponsive**

### **6.17 W9 Initiative**

The State of Florida, Department of Financial Services requires vendors doing business with the State to submit a Substitute Form W-9 electronically. Vendors who do not have a verified Substitute Form W-9 on file will experience delays in processing contracts or payments from the State of Florida. For more information go to: <https://flvendor.myfloridacfo.com/>



**ATTACHMENT I**  
**Specifications for Climate Control Systems Upgrade, Main and Annex Buildings**  
**DOH12-049**

SECTION 15010 - BASIC MECHANICAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and all other Divisions Specification sections, apply to work of this Division. The Controls contractor shall act as prime contractor and shall hire sub-contractors to perform the work described on the Construction Documents.

1.2 SUMMARY:

- A. This Section specifies the basic requirements for mechanical installations and includes requirements common to more than one section of Division 15. It outlines the basic requirements for the complete Division 15 installation.

1.3 REGULATORY REQUIREMENTS:

- A. 2010 Florida Building Code (FBC).
- B. 2007 Florida Fire Prevention Code (FFPC): This code also includes the Florida versions of NFPA 1 and NFPA 101.

1.4 REFERENCE STANDARDS:

- A. American Society of Heating, Refrigeration, and Air Conditioning Engineers:
  - 1. ASHRAE Fundamentals Handbook – 2005
  - 2. ASHRAE 15-2001 Safety Standard for Refrigeration Systems
  - 3. ASHRAE 34-2004 Designation and Safety Classification of Refrigerants
  - 4. ASHRAE 62.1-2004 Ventilation for Acceptable Indoor Air Quality
  - 5. ASHRAE HVAC Systems and Equipment Handbook – 2004
- B. Associated Air Balance Council (AABC).
- C. National Standards for Total System Balance.
- D. Americans with Disabilities Act (ADA).
- E. American National Standards Institute (ANSI):
  - 1. ANSI A13.1 Scheme for the Identification of Piping Systems.
  - 2. ANSI A117.1 Specifications for Making Building and Facilities Accessible to and Usable by Physically Handicapped People.
- F. Manufacturer's Standardization Society (MSS):
  - 1. MSS SP-58 Pipe Hangers and Supports - Materials, Design and Manufacture.
  - 2. MSS SP-69 Pipe Hangers and Supports - Selection and Application.
- G. Sheet Metal and Air Conditioning Contractor's National Association, Inc. (SMACNA):

1. HVAC Duct Construction Standards; Metal and Flexible.
2. Fire, Smoke, and Radiation Damper Installation Guide for HVAC Systems.

H. Underwriter's Laboratories (UL).

1.5 ACCESSIBILITY:

- A. Install equipment and materials to provide required access for servicing and maintenance. Coordinate the final location of concealed equipment and devices requiring access with final location of required access panels and doors. Allow ample space for removal of all parts that require replacement or servicing. Extend all grease fittings to an accessible location. Extend grease fittings on air handler to exterior of unit.

1.6 MECHANICAL INSTALLATIONS:

- A. Coordinate mechanical equipment and materials installation with other building components. Verify all dimensions by field measurements. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected. Arrange for chases, slots, and openings in other building components to allow for mechanical installations.
- B. Coordinate the installation of required supporting devices and sleeves to be set in poured in place concrete and other structural components, as they are constructed. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the work. Give particular attention to large equipment requiring positioning prior to closing-in the building. Coordinate the cutting and patching of building components to accommodate the installation of mechanical equipment and materials.
- C. Where mounting heights are not detailed or dimensioned, install mechanical services and overhead equipment to provide the maximum headroom possible. Coordinate the installation of mechanical materials and equipment above ceilings with suspension system, light fixtures, and other installations.
- D. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
- E. Use only qualified installers having specialized experience in installing the various mechanical systems. Comply with Regulatory Requirements in using licensed or certified installers. Refer to Quality Assurance article in each mechanical section for detailed, written requirements, to be submitted of all subcontractors.
- F. Install product in accordance with manufacturer's instructions. Provide all necessary fees, permits, tests, and accessories for the mechanical work. Provide excavation and backfill, for a complete system. Provide additional accessory steel angles and supports, as required, for support of piping, ductwork, equipment, and accessories. Refer to Division 1 requirements for all steel materials to be used.

1.7 DRAWINGS AND SPECIFICATIONS:

- A. Separate divisional drawings and specifications shall not relieve the contractor from full responsibility to complete all work which may be indicated on any of the drawings or in any division of the specification.
- B. The specifications and drawings are complementary and are to be taken together for a complete interpretation of the work.

- C. The drawings of necessity utilize symbols and schematic diagrams to indicate various items of work. Therefore, no interpretation shall be made from the limitations of symbols and diagrams that any elements necessary for a complete installation are excluded.
- D. Certain details appear on the drawings which are specific with regard to the dimensioning and positioning of the work. These details are intended only for the purpose of establishing general feasibility. They do not obviate field coordination for the indicated work.
- E. Examine the structural, electrical and mechanical drawings and specifications prior to submitting bid. Structural drawings take precedence over mechanical drawings with reference to building construction, location of equipment and any other similar fixed items.
- F. The engineer shall be notified of any discrepancies, omissions, conflicts or interferences which occur between drawings and specifications. If such notification is received in adequate time, additional data or changes will be issued by addendum to all bidders.
- G. In the event of a discrepancy or conflict in the Contract Documents not clarified in an Addendum, the contractor shall include in his proposal the more expensive method or material.

#### 1.8 CUTTING AND PATCHING:

- A. Do not endanger or damage installed work through procedures and processes of cutting and patching. Do not cut structural members without prior written approval of the structural engineer or architect.
- B. Arrange for repairs required to restore other work, because of damage caused as a result of mechanical installations. No additional compensation will be authorized for cutting and patching work that is necessitated by ill-timed, defective, or non-conforming installations.
- C. Perform cutting, fitting, and patching of mechanical equipment and materials required to: uncover work to provide for installation of ill-timed work; remove and replace defective work; remove samples of installed work as specified for testing; install equipment and materials in existing structures; upon written instructions from the engineer, uncover and restore work to provide for engineer observation of concealed work.

#### 1.9 MECHANICAL SUBMITTALS:

- A. Refer to the Conditions of the Contract (General and Supplementary) and Divisions 15 and 16 for submittal definitions, requirements, and procedures. Submittal of shop drawings, product data, and samples will be accepted only when submitted by the contractor. Data submitted from subcontractors and material suppliers directly to the architect/engineer will not be processed.
- B. Shop Drawings: Refer to notes on construction drawings for additional information. Prepare shop drawings on drawings the same size as the contractor documents drawing size. Reference the appropriate drawing number (or numbers) for that portion of the work. The following to be submitted for engineer's review and approval.
  1. Submit a list of all subcontractors with letter of certification/qualifications within 30 days of contract award.
  2. Submit all material, equipment, and product data, product samples, with sample equipment warranties, within 14 days of contract award.
  3. Submit Pre-final Test and Balance 14 days before engineer's review of the work for Substantial Completion and final Test & Balance 3 days before substantial completion.

- C. Product Data: Reference product data to specification section. Identify each product using the type or symbol used on the drawings. Submit a separate detailed manufacturer's product data submission for each different product or group of similar products. Identify dimensions and clearance required. Identify all thermal, piping, electrical, and controls requirements. Modify manufacturer's standard product data sheets to delete information which is not applicable to the specific product. Submit manufacturer's printed instructions for delivery, storage, assembly, installation, set-up adjusting, and finishing for each product. Identify each specified feature found in the contract documents on the detailed manufacturer's product data sheets. Submit supplementary data, as required, to indicate conformance with the drawings and specifications. Include all addenda, change orders, and clarifications.
- D. Deviations: Identify each deviation for the contract documents on the product data. Each deviation from the contract documents that is not specifically identified in the submittals with the word "Deviations" will be the contractor's responsibility to correct without a change in the contract sum or the contract time.

1.10 PRODUCT LISTING:

- A. Prepare listing of major mechanical equipment and materials for the project. Submit this listing as a part of the submittal requirement specified.

1.11 PRODUCTS:

- A. When two or more items of same material or equipment are required (plumbing fixtures, pumps, valves, air conditioning units, etc.) they shall be of the same manufacturer. Product manufacturer uniformity does not apply to raw materials, bulk materials, pipe, tube, fittings (except flanged and grooved types), sheet metal, wire, steel bar stock, welding rods, solder, fasteners, motors for dissimilar equipment units, and similar items used in work, except as otherwise indicated. Provide products which are compatible within systems and other connected items.
  - 1. Product Options and Substitutions: During the bidding period, refer to Instructions to Bidders in bidding documents for substitutions proposed during the bidding period, i.e. prior approval.

1.12 NAMEPLATE DATA:

- A. Provide permanent operational data nameplate on each item of power operated mechanical equipment, indicating manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and similar essential data. Locate nameplates in an accessible location.

1.13 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver products to project properly identified with names, model numbers, types, grades, compliance labels, and similar information needed for distinct identifications; adequately packaged and protected to prevent damage during shipment, storage, and handling.
- B. Store equipment and materials at the site, unless off-site storage is authorized in writing. Protect equipment and materials from damage before, during, and after installation.
- C. Contractor shall store all materials raised above grade level. Air handling and air distribution equipment shall be stored with all openings sealed until installed in place.

1.14 STARTING OF SYSTEMS:

- A. Motors: Confirm current limiting devices match motor requirements. Confirm rotation. Measure motor amperage and correct any overcurrent conditions.
- B. Drives: Adjust tension in V-belt drives. Adjust alignment of sheaves and V-belts. Adjust variable pitch sheaves and drives for proper speeds.
- C. Bearings: Remove foreign materials and thoroughly clean. Lubricate in accordance with manufacturer's written instructions. Verify alignment and smooth operation. Replace if bearings are defective, run rough, or run noisy.
- D. Equipment: Start each piece of equipment in accordance with manufacturer's written instructions. Verify that liquid, vapor, or electric operating utility requirements are within manufacturer's recommended amounts. Repair/refinish/repaint any chips or blemishes of epoxy coating with same type and material of color.
- E. Coordinate with Test and Balance Agency requirements.
- F. Provide additional start-up procedures for any system that required repair or alteration as part of the warranty requirements. Provide emergency service within six hours after a reported failure.
- G. Mechanical Systems Demonstration: Demonstrate the operation of each mechanical system to the engineer and the owner at least 7 days before engineer's review of the work for Final Completion. Include controls systems demonstration and instruction. Instruction owner's personnel in the operation, adjustment, and maintenance of equipment and systems using the Operating and Maintenance Data as the basis of instruction.

#### 1.15 RECORD DOCUMENTS:

- A. Refer to the Division 1 Section: PROJECT CLOSEOUT or PROJECT RECORD DOCUMENTS for requirements. The following paragraphs supplement the requirements of Division 1.
- B. Submit one set of red-lined as-built drawings, including all revisions to piping, size and location both exterior and interior; including locations of strainers, valves and other control devices and similar units requiring periodic maintenance or repair; actual equipment locations, dimensioned for column lines; concealed equipment, dimensioned to column lines; mains and branches of piping systems, with valves and control devices located and numbered, concealed unions located, and with items requiring maintenance located (i.e., traps, strainers, expansion compensators, tanks, etc.).
- C. Mark Specifications to indicate approved substitutions; Change Orders; actual equipment and materials used.

#### 1.16 SITE INSPECTIONS:

- A. General: The engineer will review the work for substantial completion and final completion, and will prepare a Substantial Completion Report and a Final Completion Report, when appropriate.
- B. Substantial Completion Report:
  - 1. The contractor will request the engineer perform a review of the work to determine if it is substantially complete.

2. Each review of the work will be reported until a Certificate of Substantial Completion is issued. Reports containing outstanding or incomplete items will constitute the Substantial Completion report, whether or not specifically identified within the report.

C. Final Completion Report:

1. The contractor will request the engineer perform a review of the work to determine if it is acceptable and fully operational.
2. Each review of the work will be reported until a final Certificate for Payment is issued. Outstanding or incomplete items reported in the Substantial Completion Report, as well as items in subsequent Project Site Visit Reports, will be reviewed. The Final Completion Report will note that all outstanding items have been completed.
3. Re-inspections: The contractor will compensate the engineer at a rate of \$150.00 per hour, per person, to review any outstanding Report item more than one time. Compensation will be made to the engineer by Change Order directly responsible by the contractor for payment. To prevent this compensation, the contractor is advised not to request the Final Completion Report until each item in the Substantial Completion Report, and subsequent Project Site Visit Reports, have been carefully verified to be completed.

1.17 OPERATION AND MAINTENANCE DATA:

A. The following information shall be included, at a minimum:

1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of all replaceable parts.
2. Manufacturer's printed operating procedures to include start-up, break-in, routine and normal operating instructions; regulation, control, stopping, shut-down, and emergency instructions; and summer and winter operating instructions.
3. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.
4. Servicing instructions and lubrication charts and schedules.

B. Spare Parts and Maintenance Materials: Provide one complete set for each mechanical unit, presented on the date of Substantial Completion. These spare parts and maintenance materials are for the owner's use and are in addition to items used in: preliminary operation, starting of systems, testing, adjusting and balancing use, and installed for Substantial Completion Review. In part, include:

1. Fuses for controls device - one spare fuse for each operating fuse, located adjacent to the operating fuse.
2. Strainer screens and gaskets.

1.18 WARRANTIES:

- A. Compile and assemble the warranties specified in Division 15, into a separated set of vinyl covered, three ring binders, tabulated and indexed for easy reference.
- B. Provide complete warranty information for each item to include product or equipment to include date of beginning of warranty or bond; duration of warranty or bond; and names,

addresses, and telephone numbers and procedures for filing a claim and obtaining warranty services.

1.19 CLEANING:

- A. All areas of work shall be thoroughly cleaned at the end of each work day.
- B. Refer to Division 15 Section: TESTING, ADJUSTING, AND BALANCING for requirements for cleaning filters, strainers, and mechanical systems prior to final acceptance.

1.20 THIRD PARTY CERTIFICATION:

- A. All packaged equipment shall be independently third Party labeled as a system for its intended use by a Nationally Recognized Testing Laboratory (NRTL) in accordance with OSHA Federal Regulation 29CFR1910.399 and NFPA 70, "National Electrical Code" (NEC), Article 90-7.

1.21 PAINTING:

- A. General: Existing and new chilled water piping and equipment shall be prepared and painted as indicated on the drawings.
- B. Quality:
  - 1. Workmen shall have three (3) years experience of similar work and work under the direction of a full-time experienced foreman with five (5) or more years of experience.
  - 2. The paint manufacturer's representative shall visit the site prior to start of work to assure products are proper and workmen are experienced and schooled for the preparation and painting. Additionally, the manufacturer's representative shall inspect a sample of work prepared at the site to demonstrate the preparation, application and establish a level of quality for the complete painting work. After painting is complete the manufacturer's representative shall visit the project and provide a written inspection report to the engineer. The report shall address the quality of the work, noting any deficiencies which require correction.
  - 3. The paint manufacturer shall warrant in writing the performance of his product for the application for a period of five (5) years, to prevent visible corrosion, except where the paint has experienced subsequent physical damage. Submittals:
    - a. Submit a painting plan consisting of material data sheets, preparation and painting procedures. The submittal shall be accompanied by a letter from the product manufacturer's representative indicating that the site has been visited, and the products and applicator are recommended for the work.
- C. Painting and Finishing:
  - 1. Finish painting of the work is included.
  - 2. Factory finished equipment which has rusted or been damaged shall be cleaned, spot primed with zinc chromate, and entirely repainted the original color by the contractor.
  - 3. Unprotected ferrous piping, electrical boxes, straps, rods, supports, and hangers exposed to view shall be painted with one (1) coat of zinc chromate and one (1) coat of aluminum.
  - 4. Prime and paint wood mounting panels with two (2) coats of gray flameproof paint. Cover both sides and all edges.

D. Products:

1. Provide materials recommended by the manufacturer for the application.
2. Manufacturer: Subject to compliance with requirements, provide products from one of the following:
  - a. Porter Paint Co.
  - b. Sherwin Williams Paint Co.
  - c. Devoe Paint Co.

E. Application:

1. Prepare and apply in accordance with the manufacturer's recommendation in conformance with other requirements of the specification. Preparation shall consist of sandblasting, wire brushing, cleaning with fluids, per the recommendations of the coating manufacturer.
2. Painting shall consist of brush application, (spray or roller application shall not be allowed) to a thickness of .05 mils (wet).

1.22 INSTALLER INFORMATION AND REQUIREMENTS FOR THE OWNER PRE-PURCHASED EQUIPMENT

A. General:

1. This document provides information and requirements associated with Owner-furnished equipment identified in the bid documents. "Installer" herein refers to the successful bidder for this project. Bidders must include any costs associated with Installer's requirements listed herein in their bid.
2. "Vendor" where used herein refers to the firm selected by the Owner to provide the Owner-furnished equipment. Vendors for specific items of equipment are identified on the drawings.
3. Should any information provided herein differ from the project plans and specifications, the requirements listed herein shall govern. Bidders should endeavor to seek clarification prior to the last day for questions indicated in the bid documents.

END OF SECTION 15010

SECTION 15015 - PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS: Drawings and general provisions of Contract, including General and Supplementary Conditions, and Section 15010 sections apply to work of this Section.

1.2 SUMMARY:

- A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.
- B. Procedural requirements governing the contractor's selection of products and product options are included in other sections.



### 1.3 DEFINITIONS:

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the contractor after award of the Contract are considered requests for "substitutions." The following are not considered substitutions:
  - 1. Substitutions requested by bidders during the bidding period, and accepted prior to award of contract, are considered as included in the contract documents and are not subject to requirements specified in this Section for substitutions.
  - 2. Revisions to contract documents requested by the owner or architect.
  - 3. Specified options of products and construction methods included in contract documents.
  - 4. The contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

### 1.4 SUBMITTALS:

- A. Substitution Request Submittal: Requests for substitution will be considered if received within sixty days after commencement of the work. Requests received more than sixty days after commencement of the work may be considered or rejected at the discretion of the architect/engineer.
- B. Submit three copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.
- C. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
  - 1. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.
  - 2. Samples, where applicable or requested.
  - 3. A detailed comparison of significant qualities of the proposed substitution with those of the work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.
  - 4. Coordination information, including a list of changes or modifications needed to other parts of the work and to construction performed by the owner and separate contractors, that will become necessary to accommodate the proposed substitution.
  - 5. A statement indicating the substitution's effect on the contractor's construction schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

6. Cost information, including a proposal of the net change, in the Contract Sum.
  7. Assurance that the substitution is equal-to or better in every significant respect to that required by the contract documents, and that it will perform adequately in the application indicated. Include the contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
- D. Action: Within one week of receipt of the request for substitution, the architect/engineer will request additional information or documentation necessary for evaluation of the request. Within two weeks of receipt of the request, or one week of receipt of the additional information or documentation, whichever is later, the architect will notify the contractor of acceptance or rejection of the proposed substitution. Acceptance will be in the form of a Change Order. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use one of the products specified as approved.

## PART 2 - PRODUCTS

### 2.1 SUBSTITUTIONS:

- A. Conditions: The contractor's substitution request will be received and considered by the architect/engineer when one or more of the following conditions are satisfied, as determined by the architect/engineer; otherwise requests will be returned without action except to record noncompliance with these requirements.
1. Extensive revisions to contract documents are not required.
  2. Proposed changes are in keeping with the general intent of Contract Documents.
  3. The request is timely, fully documented and properly submitted.
  4. The specified product or method of construction cannot be provided within the contract time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the work promptly or coordinate activities properly.
  5. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
  6. A substantial advantage is offered the owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the owner may be required to bear. Additional responsibilities for the owner may include additional compensation to the architect for redesign and evaluation services, increased cost of other construction by the owner or separate contractors, and similar considerations.
  7. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the contractor certifies that the substitution will overcome the incompatibility.
  8. The specified product or method of construction cannot be coordinated with other materials, and where the contractor certifies that the proposed substitution can be coordinated.

9. The specified product or method of construction cannot provide a warranty required by the contract documents and where the contractor certifies that the proposed substitution can provide the required warranty.
10. Where a proposed substitution involves more than one subcontractor, each contractor shall cooperate with the other contractors involved to coordinate the work, provide uniformity and consistency, and to assure compatibility of products.
11. The contractor's submittal and architect/engineer's acceptance of shop drawings, product data or samples that relate to construction activities not complying with the contract documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

END OF SECTION 15015

## SECTION 15020 - SHOP DRAWINGS AND SUBMITTALS

### PART 1 - GENERAL

- 1.1 RELATED DOCUMENTS: Drawings and general provisions of Contract, including General and Supplementary Conditions, Section 15010 Specification sections apply to work of this Section.
- 1.2 DESCRIPTION OF REQUIREMENTS:
  - A. This Section specifies procedural requirements for non-administrative submittals including shop drawings product data, samples, and other miscellaneous submittals.
  - B. Shop drawings are technical drawings and data that have been specially prepared for this project. Information required on shop drawings includes dimensions, identification of specific products and materials which are included in the work, compliance with specified standard and notations of coordination requirements with other work. Provide special notation of dimensions that have been established by field measurement. Indicate deviations from the contract documents on the shop drawings.
  - C. Product data includes standard printed information on manufactured products that has not been specially-prepared for this project. General information required specifically as product data includes manufacturer's standard printed recommendations for application and use, compliance with recognized standards of trade associations and testing agencies, and the application of their labels and seals special notation of dimensions which have been verified by way of field measurement, and special coordination requirements for interfacing the material, product or system with other work.
  - D. Samples are physical examples of work. Documentation required specifically for sample submittals includes a generic description of the sample, the sample source or the product name or manufacturer, compliance with governing regulations and recognized standards. In addition, indicate limitations in terms of availability, sizes, delivery time, and similar limiting characteristics.
  - E. Miscellaneous submittals are work-related, nonadministrative submittals that do not fit in the three previous categories.
- 1.3 SUBMITTAL PROCEDURES:

- A. Submit all Division 15 Shop Drawings, product data samples, and related documents in one package. Submittal should be as complete as possible and include the following:
1. Enclose submittal in 3-ring or similar loose leaf booklet.
  2. Include title page and table of contents.
  3. Include list of subcontractors' qualifications and suppliers.
  4. Provide tabs in front of major submittal sections relating back to table of contents.
- B. No individual submittal sections will be considered and will be returned marked "No Action", with the following exceptions:
1. Items with long "Lead Time" may be submitted early if all such items are packaged together.
  2. Sheet metal, piping and control drawings may be submitted after initial submittal due to preparation time required.
- C. Prepare and transmit the submittal to the architect/engineer sufficiently in advance of the scheduled performance of related work and other applicable activities. Advise the architect/engineer if processing time is critical to the progress of the work.
1. Allow two weeks minimum for the architect/engineer's initial processing of each submittal. The architect/engineer will advise the contractor promptly when it is determined that a submittal being processed must be delayed for coordination.
  2. Allow one week for processing each resubmittal.
  3. No extension of time will be authorized because of the contractor's failure to transmit submittals to the architect/engineer sufficiently in advance of the work.
- D. Mark each submittal with a permanent label for identification. Provide the following information on the label for proper processing and recording of action taken.
1. Project name.
  2. Date.
  3. Name and address of architect/engineer, contractor, subcontractor and supplier.
  4. Name of manufacturer.
  5. Number and title of appropriate specification section.
  6. Drawing number and detail references, as appropriate.
  7. Similar definitive information as necessary.
  8. Provide a space on the label for the contractor's review and approval markings, and a space for the architect/engineer's "Action" marking.
- E. Transmit each submittal from the contractor to the architect/engineer, and to other destinations as indicated, by use of a transmittal form. Submittals received from sources other than the contractor will be returned to the sender marked "No Action".

#### 1.4 SPECIFIC SUBMITTAL REQUIREMENTS:

- A. Shop Drawings: Provide six prints plus two additional prints where they are required for maintenance manuals. Two prints will be retained; the remainder will be returned. One of the prints returned will be marked-up and maintained by the contractor as a "Record Document". Provide coordination drawings where required for the integration of the work. Show

sequencing and relationship of separate units of work which are located in areas with restricted space. Submit newly prepared information, drawn to accurate scale on sheets not less than 8 inches by 11 inches; except for actual pattern or template type drawings, the maximum sheet size shall not exceed 36 inches by 48 inches. Indicate the name of the firm that prepared each shop drawing and provide appropriate project identification in the title block.

- B. Product Data: Submit six copies. Do not proceed with installation of materials, products and systems until a copy of product data applicable to the installation is in the possession of the installer. Do not permit the use of unmarked copies of product data in connection with the performance of the work.
- C. Samples: Where requested in the specifications and/or documents, submit three sets of samples for the architect/engineer's visual review; one set will be returned with comments. Maintain the reviewed submittal set of samples, as returned by the architect/engineer, at the project site, available for quality control comparisons throughout the course of performing the work.
- D. Miscellaneous Submittals:
  - 1. Inspection and Test Reports: Classify each inspection and test report as being either "shop drawings" or "product data" depending on whether the report is specially prepared for the project, or a standard publication of workmanship control testing at the point of production. Process inspection and test reports accordingly.
  - 2. Warranties: Refer to other sections for specific general requirements on warranties, product bonds, workmanship bonds and maintenance agreements. In addition to copies desired for the contractor's use, furnish two executed copies of such warranties, bonds or agreements. Provide two additional copies where required for maintenance manuals.
  - 3. Standards: Where submittal of a copy of standards is indicated, and except where copies of standards are specified as an integral part of a "Product Data" submittal, submit a single copy of standards for the architect/engineer's use.
  - 4. Close-Out Submittals: Refer to other sections of these specifications for specific submittal requirements of project closeout information, materials, tools, and similar items.
    - a. Record Documents: Furnish a set of original documents as maintained on the project site. Along with original marked-up record drawings, provide two copies of marked-up drawings which may be reduced to not less than half size. Provide one copy of the final, approved shop drawings.
    - b. Operation and Maintenance Data: Include description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of all replaceable parts. Also include manufacturer's printed operating procedures, maintenance procedures, and servicing instructions, lubrication charts and schedules.
    - c. Materials and Tools: Refer to individual sections of these specifications for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar physical units to be submitted.

#### 1.5 ARCHITECT/ENGINEER'S ACTION:

- A. Except for submittals for the record and similar purposes, where action and return on submittals is required or requested, the architect/engineer will review each submittal, mark with appropriate "Action Taken", and where possible return within two weeks of receipt. The architect/engineer will stamp each submittal to be returned with a uniform, self-explanatory action stamp, appropriately marked to indicate one of the following:
1. Final Unrestricted Release: Where the submittals are marked "No Exception Taken", the work covered by the submittal may proceed provided it complies with the requirements of the contract documents; acceptance of the work will depend upon that compliance.
  2. Final-But-Restricted Release: When the submittals are marked "Exception Taken as Noted", the work covered by the submittal may proceed provided it complies with both the architect's/engineer's notations or corrections on the submittal and with the requirements of the contract documents; acceptance of the work will depend upon that compliance.
  3. Returned for Resubmittal: When the submittal is marked either "Revise and Resubmit" or "Not Accepted Resubmit", do not proceed with the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise the submittal or prepare a new submittal in accordance with the architect's/engineer's notations stating the reasons for returning the submittal; resubmit the submittal without delay. Repeat if necessary to obtain a different action marking. Do not permit submittals with this marking to be used at the project site, or elsewhere where work is in progress.
  4. Other Action: Where the submittal is returned, marked with the architect/engineer's explanation, for special processing or other contractor activity, or is primarily for information or record purposes, the submittal will be marked "For Information Only".

END OF SECTION 15020

## SECTION 15250 - MECHANICAL INSULATION

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions, and Section 15010 Specification sections apply to work of this Section.

#### 1.2 DESCRIPTION OF WORK

- A. Extent of mechanical insulation required by this Section is indicated on drawings and schedules, and by requirements of this Section. Types of mechanical insulation specified in this Section include the following:

1. Insulation of piping, fittings and other surfaces.

#### 1.3 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of mechanical insulation products, of types and sizes required, whose products have been in satisfactory use in similar service for not less than five years.
- B. Installer's Qualifications: Firm with at least five years successful installation experience on projects with mechanical insulation similar to that required for this project.

- C. Flame/Smoke Ratings: Provide composite mechanical insulation (insulation, jackets, coverings, sealers, mastics and adhesives) with flame-spread index of twenty-five or less, and smoke-developed index of fifty or less, in accordance with NFPA 90A (2002).
- D. Comply with 2010 Florida Building Code, Energy Conservation.

#### 1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions, for each type of mechanical insulation. Submit schedule showing manufacturer's product number, K-value, thickness, and furnished accessories for each mechanical system requiring insulation.

### PART 2 PRODUCTS

#### 2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers offering products which may be incorporated in the work include Armstrong World Industries, Inc., CertainTeed Corp., Knauf Fiber Glass GmbH, Manville Products Corp., Owens-Corning Fiberglass Corp., Pittsburgh Corning Corp., and K-Flex.

#### 2.2 PIPING INSULATION MATERIALS

- A. Flexible unicellular piping insulation (Armaflex): Pre-formed split sectional closed-cell pipe insulation. Suitable for operating temperatures of -40degF to +220degF. Thermal conductivity "K" factor of 0.27.
- B. Fittings: Provide fitting coverings of a similar material and thickness as adjacent pipe coverings. Cover all elbows, tees, valves, flanges and other fittings of piping system.
- C. Accessories: All staples, bands, wires, adhesives, cements, sealers and protective finishes to be as recommended by insulation manufacturers.

#### 2.3 JACKETS

- A. General: All jackets shall be factory applied. Additional bands/sealer to be field provided as recommended by jacket manufacturer.
- B. Type A: Fire retardant, all-purpose jacketing as manufactured by Pittsburg Corning, Type "ASJ". Only for indoor installations. All piping shall be painted after installation of insulation.
- C. Type B: 0.024 painted aluminum jacketing for all outdoor installations.
- D. Type C: Aluminum foil laminate to plastic cladding for all exterior installations. Al-Clad, as manufactured by K-FLEX USA, or approved equal.
- E. Fittings: Provide fitting coverings of a similar material and thickness as adjacent pipe coverings. Cover all elbows, tees, valves, flanges, and other fittings of piping system.
- F. Accessories: All staples, bands, wires, adhesives, cements, sealers and protective finishes to be as recommended by insulation manufacturers.

#### 2.4 DUCTWORK INSULATION MATERIALS

- A. Flexible Fiberglass Ductwork Insulation: Foil backed,  $\frac{3}{4}$  pound per cubic foot density blanket, two inch minimum thickness, with a minimum installed R value of 6.
- B. Jackets: Pre-sized reinforced glass mesh adhered to insulation or ductwork with fire retardant vapor barrier lagging adhesive.
- C. Ductboard Insulation: Fiberglass ductboard insulation with a factory applied foil-skrim-kraft facing, 1  $\frac{1}{2}$ " thick, 3lb p.c.f density with a minimum R value of 6.5.
- D. Provide accessories (staples, bands, wires, etc.) and compounds (cements, adhesives, coatings, etc.) as recommended by insulation manufacturer.

## 2.5 EQUIPMENT INSULATION MATERIALS

- A. Flexible Unicellular Equipment Insulation: Closed-cell insulation suitable for operating temperatures of -40degF to +220degF.
- B. Jacketing Material: Provide pre-sized glass cloth jacketing material, not less than 7.8 ounces per square yard.
- C. Provide accessories (staples, bands, wire, etc.) and compounds (adhesives, cements, sealers, etc.) as recommended by insulation manufacturer.

## PART 3 EXECUTION

### 3.1 INSPECTION

- A. Examine areas and conditions under which mechanical insulation is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to installer.

### 3.2 INSULATION INSTALLATION, GENERAL

- A. Install insulation products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices.
- B. Overlap insulation a minimum of 2" at seam and seal seam with pressure sensitive tape. Seal all vapor barrier penetrations with mastic and tape. For ducts over 18" wide, secure insulation to bottom of duct with mechanical fasteners spaced on 12" centers.
- C. Install insulation materials with smooth and even surfaces. Do not use cut pieces or scraps abutting each other.
- D. Clean and dry surfaces prior to insulating. Butt insulation joints firmly together to ensure complete and tight fit over surfaces to be covered. Maintain integrity of vapor-barrier, and protect to prevent puncture or other damage.
- E. Extend piping insulation without interruption through walls, floors and similar piping penetrations, except where otherwise indicated.
- F. Apply brush coat of mastic over all joints, tap, pins, etc.
- G. Protect outdoor insulation from weather or ultraviolet deterioration by installing outdoor protective finish or jacketing.



- H. Install insulation on pipe systems subsequent to testing and acceptance of tests.
- I. Cover valves, fittings and similar items in each piping system with equivalent thickness and composition of insulation as applied to adjoining pipe run. Install factory molded fabricated units except where specific form or type is indicated.
- J. Butt pipe insulation against pipe hanger insulation inserts. For hot pipes, apply three inch wide vapor barrier tape or band over the butt joints. For cold piping apply wet coat of vapor barrier lap cement on butt joints and seal joints with three inch wide vapor barrier tape or band.

### 3.3 HVAC PIPING SYSTEM INSULATION

- A. Insulate refrigerant suction lines between evaporators and compressors, and refrigerant hot gas piping with flexible unicellular insulation,  $\frac{3}{4}$ " thick for pipe sizes up to 2"; 1" thick for pipe sizes 2 $\frac{1}{2}$ " and larger.
- B. Insulate condensate drain piping inside of the building with flexible unicellular insulation  $\frac{3}{4}$ " thick for all pipe sizes.
- C. Cover valves, fittings and similar items in each piping system with equivalent thickness and composition of insulation as applied to adjoining pipe run. Install factory molded, precut or job fabricated units except where specific form or type is indicated.

### 3.4 EQUIPMENT INSULATION

- A. Finish with  $\frac{1}{2}$ " coat of finishing cement. Fill in with cement of sufficient thickness to remove surface irregularities. Cover insulated surfaces with all-service jacketing. Lap seams at least two inches. Apply over vapor barrier where applicable.

### 3.5 DUCTWORK SYSTEM INSULATION

- A. Insulate HVAC supply ductwork between HVAC unit discharge and neck and plenum of supply diffusers; HVAC return ductwork between room terminal inlet and HVAC unit inlet; and HVAC plenums and unit housings not pre-insulated at factory or lined. Insulate outdoor air ductwork.
- B. Insulate HVAC outdoor supply, supply and return ductwork in mechanical room with ductboard insulation.

### 3.6 REPAIR, REPLACEMENT AND PROTECTION

- A. Insulation installer shall advise contractor of required protection for insulation work during remainder of construction period, to avoid damage and deterioration.

END OF SECTION 15250

## SECTION 15856 - VARIABLE FREQUENCY DRIVES

### PART 1 - GENERAL

- 1.1 RELATED DOCUMENTS: Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 15 Specification Sections, apply to work of this Section.
- 1.2 GENERAL:

A. Section includes: Variable Frequency Drives (VFD)

1.3 QUALITY ASSURANCE: Acceptable Manufacturers: ABB, Dan Foss, Emerson, GE, Mitsubishi, Square D, Toshiba, Trane TR2, Yaskawa, York Air Modulator Drives.

A. Manufacturer's Qualifications: Firms regularly engaged in variable frequency drives with characteristics, sizes, and options required, whose products have been in satisfactory use in similar service for not less than five years.

1.4 REFERENCES:

A. Comply with:  
UL 508  
NEC  
Canadian Underwriters Laboratory (C-UL)  
IEEE 519 (Limited Harmonic Distribution)

## PART 2 - PRODUCTS

2.1 GENERAL:

- A. Furnish complete variable frequency drives as specified herein for the fans designated on the drawing schedules to be variable speed. All standard and optional features shall be included within the VFD enclosure, unless otherwise specified. VFD shall be housed in a metal NEMA 1 enclosure.
- B. The VFD shall have an integral electrical disconnect.
- C. The VFD shall have auxiliary contact to support fan shut-down by the fire alarm system.
- D. The VFD shall convert incoming fixed frequency three-phase AC power into a variable frequency and voltage for controlling the speed of three phase AC motors. The motor current shall closely approximate a sine wave. Motor voltage shall be varied with frequency to maintain desired motor magnetization current suitable for centrifugal fan and pump control.
- E. An advanced sine wave approximation and voltage vector control shall be used to allow operation at rated motor shaft output at nominal speed with no derating. The voltage vector control shall minimize harmonics to the motor to increase motor efficiency and life.
- F. The VFD shall include a full-wave diode bridge rectifier and maintain a fundamental power factor near unity regardless of speed or load.
- G. The VFD and options shall be tested to ANSI/UL Standard 508. The complete VFD, including all specified options, shall be listed by a nationally recognized testing agency such as UL, C-UL, ETL, or CSA.
- H. The VFD shall have a DC link reactor and/or input filters to minimize power line harmonics. VFDs without a DC link reactor shall provide a 5% impedance line reactor. The VFD Total Harmonic Distortion (THD) shall be 10% or less.
- I. The VFD's full load amp rating shall meet or exceed NEC Table 430.250. The VFD shall be able to provide full rated output current continuously, 110% of rated current for 60 seconds, and 220% of rated current for up to 1 second while starting.

- J. An automatic energy optimization selection feature shall be provided standard in the drive. This feature shall reduce voltages when lightly loaded and provide a 3% to 10% additional energy savings.
- K. Input and output power circuit switching can be done without interlocks or damage to the VFD.

## 2.2 PROTECTIVE FEATURES

- A. Class 20 I2t electronic motor overload protection for single motor applications and thermal-mechanical overloads for multiple motor applications.
- B. Protection against input transients, loss of AC line phase, short circuit, ground fault, overvoltage, undervoltage, drive overtemperature and motor overtemperature. The VFD shall display all faults in plain English. Codes are not acceptable.
- C. Protect VFD from sustained power or phase loss. The VFD shall incorporate a 5 second control power loss ride through to eliminate nuisance tripping.
- D. The VFD shall incorporate a motor preheat circuit to keep the motor warm and prevent condensation build-up in the stator.
- E. Drive shall have semi-conductor rated input fuses to protect power components.
- F. The drive shall be fitted with output line reactors to limit the rate of output voltage rise over time (dV/dt), reduce motor operating temperature and RFI and EMI. To prevent breakdown of the motor winding insulation, the dV/dt must be below 1500 V/usec per IEC recommendations. The contractor shall include with the quotation the dV/dt values of the drive.
- G. Drive shall catch a rotating motor operating forward or reverse up to full speed.
- H. VFD shall be rated for 100,000 amp interrupting capacity (AIC) minimum.

## 2.3 INTERFACE FEATURES:

- A. Local/Hand, Stop/Reset, and Remote/Auto selector switches shall be provided to start and stop the drive and determine the speed reference.
- B. Provide a 24 vDC, 40 mA max, output signal to indicate that the drive is in Remote/Auto mode.
- C. Digital manual speed control. Potentiometers are not acceptable.
- D. Lockable, alphanumeric backlit display keypad can be remotely mounted up to 10 feet away.
- E. VFDs up to 300 hp shall use the same control panel.
- F. Displays shall be available 6 languages including English, Spanish and French.
- G. A red FAULT light and a green POWER-ON light shall be provided.
- H. A quick setup menu with preset parameters shall be provided on the drive.

- I. The drive shall be fitted with a translator interface controller (BACNET Protocol) with an RS 485 serial communications port and be supplied with software to display all monitoring, fault, alarm, and status signals. The software shall allow parameter changes to be made to the drive settings as well as storage of each controller's operating and setup parameters. The minimum points are as follows:
- J. Monitoring:
  - Output Frequency
  - Speed
  - Motor Current
  - % Motor Torque
  - % Motor Power
  - Drive Temperature
  - Current Limit
  - Accel. Time
  - Decel. Time
  - PI-Cont Gain
  - PI-Cont I-Time
  - kWh Energy
  - Mwh Energy
  - Frequency Reference
  - % Frequency Reference
  - Drive Fault
  - Drive Running
  - Drive Direction
  - DC Bus Voltage
  - Output Voltage
  - Tun Time
- K. Commandable:
  - Reset Fault
  - Stop/Run
  - Forward/Reverse
  - Lock Panel
  - Frequency Reference
  - % Frequency Reference
- L. Set point control interface (PIC control) shall be standard in the unit.
- M. Floating point control interface shall be provided to increase/decrease speed in response to switch closures.
- N. An elapsed time meter and kWh meter shall be provided. The following displays shall be accessible from the control panel in actual units: Reference Signal Percent, Output Frequency, Output Amps, Motor hp, Motor kW, kWhr, Output Voltage, No Load Warning, DC Bus Voltage, Drive Temperature (% until trip) and Motor Speed in engineering units per application (in percent speed, gpm, cfm).
- O. Drive will sense the loss of load and signal a no load/broken belt warning or fault.
- P. The VFD shall store in memory the last 8 faults and record all operational data.
- Q. Eight programmable digital inputs shall be provided for interfacing with the systems control and safety interlock circuitry.

- R. Two programmable relay outputs shall be provided for remote indication of drive status.
- S. Two programmable analog inputs shall be provided and shall accept a direct-or-reverse acting signal. Analog reference inputs accepted shall include 0-10 vDC, 0-20 mA and 4-20 mA.
- T. Two programmable analog outputs shall be provided for indication of drive status. These outputs shall be programmable for output speed, voltage, frequency, amps, and input kW.
- U. Under fire mode conditions, the VFD shall automatically default to a preset speed.

2.4 ADJUSTMENTS:

- A. VFD shall have an adjustable carrier frequency of 2 to 24 kHz through 60 hp and 2 to 4.5 kHz above 60 hp.
- B. Three variable-torque V/Hz patterns shall be provided with the ability to select a constant torque start pattern for each of them.
- C. Twenty preset speeds shall be provided.
- D. Eight acceleration and eight deceleration ramps shall be provided. The shape of these curves shall be adjustable.
- E. Four current limit settings shall be provided.
- F. If VFD trips on one of the following conditions, the VFD shall be programmable for automatic or manual reset: undervoltage, overvoltage, current limit, inverter overload, and motor overload.
- G. The number of restart attempts shall be selectable from 0 through 10 and the time between attempts shall be adjustable from 0 through 10 seconds.

2.5 BYPASS: Provide an electronic bypass consisting of a door interlocked main fused disconnect padlockable in the off position, a built-in motor starter, and a four-position DRIVE/OFF/LINE/TEST switch controlling three contactors. In the DRIVE position, the motor is operated at an adjustable speed from the drive. In the OFF position, the motor and drive are disconnected. In the LINE position, the motor is operated at full speed from the AC power line and power is disconnected from the drive, so that service can be performed. In the TEST position, the motor is operated at full speed from the AC line power. This allows the drive to be given an operational test while continuing to run the motor at full speed in bypass. Equipment supplied normally closed dry contact shall be interlocked with the drives safety trip circuitry to stop the motor whether in DRIVE or BYPASS mode in case of an external safety fault, capable of remote shutdown for fire alarm.

2.6 SERVICE CONDITIONS:

- A. Ambient temperature, -10° to 40°C (14 to 104°F).
- B. 0 to 95% relative humidity, non-condensing.
- C. Elevation to 3,300 feet without derating.
- D. AC line voltage variation, -10 to +10% of nominal with full output.

- E. No side clearance shall be required for cooling of wall mount units and all power and control wiring shall be done from the bottom.
- F. Drive shall be capable of operating a motor up to 1,000 feet away without derating or field modification.

2.7 QUALITY ASSURANCE:

- A. To ensure quality and minimize infantile failures at the jobsite, the complete VFD shall be tested by the manufacturer. The VFD shall operate a dynamometer at full load and the load and speed shall be cycled during the test.
- B. All optional features shall be functionally tested at the factory for proper operation.

2.8 SUBMITTALS:

- A. Product Data: Submit manufacturer's technical product data including: weights, dimensions, required clearances, and methods of installation, furnished specialties and accessories; and installation and start-up instructions.
- B. Shop Drawings: Submit manufacturer's assembly-type shop drawings indicating dimensions, weight loadings, required clearances, methods of assembly of components, and location and size of each field connection.
- C. Provide manufacturer's certification that is licensed to bear the approval of the governing agencies listed under quality assurance.
- D. Maintenance Data: Installation, Operation and Maintenance Manual (IOM): Provide manufacturer's installation, operations, and maintenance manual, including instructions on installation, operations, maintenance, receiving, handling, storage, safety information and cleaning. A troubleshooting guide, parts list, and warranty.
- E. Wiring Diagrams: Submit ladder-type wiring diagrams for power and control wiring required for final installation of variable frequency drives and controls. Clearly differentiate between portions of wiring that are factory-installed and portions to be field installed.

2.9 WARRANTY:

- A. Provide a three (3) year warranty to include coverage, parts and labor for entire variable frequency drive.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Contractor to verify that job site conditions for installation meet factory recommended and code-required conditions for VFD installation prior to start-up, including clearance spacing, temperature, contamination, dust, and moisture of the environment. Separate conduit installation of the motor wiring, power wiring, and control wiring, and installation per the manufacturer's recommendations shall be verified.
- B. The VFD is to be covered and protected from installation dust and contamination until the environment is cleaned and ready for operation. The VFD shall not be operated while the unit is covered.

### 3.2 START-UP SERVICE:

- A. The manufacturer shall provide start-up commissioning of the variable frequency drive and its optional circuits by a factory certified service technician who is experienced in start-up and repair services. The commissioning personnel shall be the same personnel that will provide the factory service and warranty repairs at the project site. Sales personnel and other agents who are not factory certified technicians for VFD field repair shall not be acceptable as commissioning agents. Start-up services shall include checking for verification of proper operation and installation for the VFD, its options, and its interface wiring to the building automation system. Start-up shall include owner operator training of not less than 8 hours at the time of the equipment commissioning.
- B. The manufacturer's representative shall be on site as needed during equipment initial start-up and during final commissioning by the Owner's Commissioning Agent.

### 3.3 TRAINING OF OWNER'S PERSONNEL:

- A. Schedule training with owner and equipment manufacturer and provide two four-hour sessions. The owner shall have the option of scheduling the second training session throughout the first year of operation.

END OF SECTION 15856

## SECTION 15933 - AIR TERMINALS

### PART 1 – GENERAL

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 15 specification sections apply to work of this Section.

#### 1.1 QUALITY ASSURANCE

- A. **Manufacturer's Qualifications:** Firms regularly engaged in manufacture of air terminals with characteristics, sizes, and capacities required, whose products have been in satisfactory use in similar service for not less than five years.
- B. **ARI 880 Compliance:** Provide air terminals which have been tested and rated in accordance with ARI 880 standards.
- C. **NFPA and UL Compliance:** Construct air terminals using acoustical and thermal insulation complying with NFPA 90A, "Air Conditioning and Ventilating Systems", and UL 181.
- D. Comply with the 2010 Florida Building Code, Energy Efficiency and Mechanical Volumes.

#### 1.2 SUBMITTALS

- A. **Product Data:** Submit manufacturer's technical product data, including performance data for each size and type of air terminal furnished; schedule showing drawing designation, room locations, number furnished, model number size, and accessories furnished; and installation and start-up instructions.
- B. **Shop Drawings:** Submit manufacturer's assembly-type shop drawings indicating dimensions, weight loadings, required clearances, and wiring diagrams with field connections.

### 1.3 VAV BOXES

- A. Casings: Construct of 22 gauge zinc coated steel mechanically sealed, gasketed and leak resistant for outer wall. Inner wall shall have 22 gauge zinc coated steel inner liner.
- B. Insulation: Insulation shall be 1" thick, 2.1 lb. density fiberglass insulation between outer casing and inner liner with no fiberglass exposed to the airstream.
- C. Air Damper: Construct of two layers of heavy gauge galvanized steel, with peripheral gasket and solid steel shaft, pivoted in self-lubricating bearings. In the full closed position, air leakage past the closed damper shall not exceed 1% of the nominal catalog rating at 4"w.g. inlet static pressure, when tested in accordance with ASHRAE 130.
- D. Air Flow Sensor: Locate at the inlet of the VAV box. The sensor shall have twelve total pressure sensing ports and a center averaging chamber designed to accurately average the flow across the inlet of the assembly. Sensor shall provide accuracy within 5% with a 90° sheet metal elbow directly at the inlet of the assembly. The air flow sensor shall amplify the sensed air flow signal.
- E. Controls enclosure boxes shall have control enclosure to house the controller and actuator. Provide 24v control transformer.
- F. Acceptable Manufacturers: Price, Enviro-Tec, JCI, and Titus Products Div.

### 1.4 WARRANTY

- A. Provide five years parts warranty for all components except electric heater which is to be covered by a one year parts warranty. Warranty period starts at date of substantial completion.

## PART 2 - EXECUTION

### 2.1 INSPECTION

- A. General: Install air terminals as indicated, and in accordance with manufacturer's installation instructions.
- B. Location: Install each unit level and accurately in position indicated in relation to other work. Maintain sufficient clearance for normal service and maintenance, but in no case less than that recommended by manufacturer.

- 2.2 CLEANING: Clean exposed factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's tough-up paint.

*END OF SECTION 15933*

## **SECTION 15975 - DIRECT DIGITAL CONTROLS - DDC**

### **PART 1 - GENERAL**

#### 1.1 SCOPE OF WORK

- A. Prior to bid, the Controls contractor shall thoroughly survey Hillsborough County Health



Department's downtown main building to determine the exact quantities of the existing equipment and the number of control points needed to satisfy the owner's intended scope of the controls renovation, as well as, control points as needed for future expandability.

- B. The Controls contractor shall act as "prime" contractor on this project, and shall hire mechanical and electrical sub-contractors as needed to complete this scope of work. Pre-approved contractors are as follows:
1. HVAC
    - a. Air Mechanical and Service Corp.
    - b. BCH
    - c. Energy Air
    - d. Southern Equipment Corp.
  2. T&B
    - a. Phoenix Agency
    - b. Pro-Tech
    - c. Southern Independent Testing Agency
  3. Electrical
    - a. E\*Star Electric, Inc.
    - b. ANECO
    - c. Alliance Power
- Other sub-contractors will be considered, but must be pre-approved by the landlord prior to bidding.
- C. All work must be performed in accordance with the buildings "Working Contract," which stipulates acceptable working hours, noise levels, system continuity, etc. Additionally, the contractor is responsible for coordinating with the landlord to see if there are any other requirements not expressed within the "Working Contract." The contractors are required to dispose of any and all waste and existing control system components not being used.
- D. The controls contractor shall provide a new internal network. Where exposed, the network cabling shall be run within existing conduit in the mechanical rooms resulting from the removal of the existing controls, as well as, new conduit where exposed and existing conduit does not exist or the existing conduits size is inadequate. Plenum rated cabling is permissible where concealed above a lay-in ceiling.
- E. Existing control enclosures and their associated 120 V power may be reused, as well as, control voltage transformers where possible.
- F. Provide new equipment identification in accordance with the plans. The plastic equipment tags shall be added to all mechanical equipment and their associated disconnect or VFD by the mechanical sub-contractor. The electrical sub-contractor shall update all electrical panel ID cards with the new equipment names.
- G. The contractor is responsible to include in bid all work needed to maintain the continuity of all existing controls during business hours.
- H. The following existing equipment are under the scope of the controls renovation:

1. Two chilled water multi-zone air handlers.
  - a. New modulating electric actuators shall replace the existing actuators on the zone dampers. Provide points for damper position monitoring, command, and fault alarm.
  - b. On the first floor, provide new modulating electric actuators shall replace the existing actuators on the 3-way chilled water valves. Provide points for valve position monitoring, command, and fault alarm. On the second and third floors, replace the existing three-way control valves with new pressure independent 2-way modulating chilled water valves. Existing balancing valves downstream of 2-way valves shall be removed where pressure independent two-way valves are installed. Insulate valves and new piping per specification. Alternate 1 will be to replace the actuators on the existing 3-way chilled water valves on the second and third floors.
  - c. Implement programming for chilled water coil temperature reset based on outdoor air conditions; increase temperature setpoint upon detection of low outside air temperature and humidity or decrease temperature setpoint upon detection of high return air humidity.
  - d. New 2-position electric actuators shall replace the existing actuators on the outside air dampers. Provide points for damper position monitoring, command, and fault alarm.
2. Eleven chilled water single zone air handlers.
  - a. On the first floor, provide new modulating electric actuators shall replace the existing actuators on the 3-way chilled water valves. Provide points for valve position monitoring, command, and fault alarm. On the second and third floors, replace the existing three-way control valves with new pressure independent 2-way modulating chilled water valves. Existing balancing valves downstream of 2-way valves shall be removed where pressure independent two-way valves are installed. Insulate valves and new piping per specification. Alternate 1 will be to replace the actuators on the existing 3-way chilled water valves on the second and third floors.
  - b. New 2-position electric actuators shall replace the existing actuators on the outside air dampers. Provide points for damper position monitoring, command, and fault alarm.
  - c. Provide a line item cost for new control enclosures if the existing ones cannot accommodate the new control components. This shall include 120 V power for additional/relocated control enclosures.
  - d. Alternate 3 - Add an occupancy sensor to the room served by air handler AH-2-2 (old AH-9) and provide an alternate sequence of control to have the unit run intermittently when the room is unoccupied and reset to 72°F and run continuously when occupied.
3. One chilled water variable air volume air handler (third floor).
  - a. On the third floor main air handler, replace the existing three-way control valves with new pressure independent 2-way modulating chilled water valves. Existing balancing valves downstream of 2-way valves shall be removed where pressure independent two-way valves are installed. Insulate valves and new piping per specification. Alternate 1 will be to replace the actuator on the existing 3-way chilled water valve.

- b. New 2-position electric actuators shall replace the existing actuators on the outside air dampers. Provide points for damper position monitoring, command, and fault alarm.
  - c. Provide a line item cost for new control enclosures if the existing ones cannot accommodate the new control components. This shall include 120 V power for additional/relocated control enclosures.
  - d. Relocate the three existing zone electric duct heaters to make provisions for three new cooling only VAV boxes. Provide a new duct static pressure sensor and VFD on the air handler to complete the VAV transition. Alternate 2 will be to delete this scope and provide new controls for the existing zone electric duct heaters.
4. Five DX Split Systems.
- a. Connect to the DDC system for start/stop status. For ductless splits that cannot be wired into DDC thermostats, provide a temperature sensor within the room for high temperature alarm. Rooms served by multiple units only need one sensor for alarm monitoring.
5. Two water source heat pumps.
- a. Provide new space and duct-mounted temperature and humidity sensors and wiring.
6. Two outside air supply fans (serving basement water source heat pumps)
- a. Provide sensors for monitoring of outside air dry bulb and wet bulb temperatures.
  - b. Connect the existing two two-position actuators in basement mechanical room to DDC system. Provide points for damper position monitoring, command, and fault alarm.
7. Five exhaust fans.
- a. Provide start/stop and run status of exhaust fans.
  - b. Alternate 4 replace the existing refrigerant monitor and connect new monitor to the existing emergency exhaust fan F-4.
8. Two water-cooled chillers
- a. Provide new electric actuator for existing isolation valves as well as new wiring to the new control panel.
  - b. Provide a pipe differential pressure sensor just upstream of AH-2 as part of the 2-way valve pressure independent control valve upgrade. Connect the differential pressure sensor to the nearest control module. This cost shall be excluded alternate 1.
  - c. Monitor all control points listed on controls point list found on the drawings.
9. One cooling tower with VFD speed controlled fan
- a. Provide control of three associated condenser water pumps.

- b. The scope of work does not include replacement of the isolation or bypass valves or actuators in the condenser water distribution; only new wiring to reconnect them to the new controls.
  - c. Provide control of condenser water bypass.
  - d. Provide add alternate price for water level monitoring strategy for each of the tower basins. Include low water and high water alarm points.
  - e. Provide condenser water leaving water temperature sensors for the cooling tower.
  - f. Connect water softener for monitoring status.
10. Two chilled water pumps
- a. Provide new electric actuator for existing isolation valves as well as new wiring to the new control panel.
  - b. Provide a new VFD's per drawings and specifications to replace the existing starter/disconnects. This cost shall be excluded in alternate 1.
  - c. Monitor all control points listed on controls point list found on the drawings.
11. Three condenser water pumps
- a. Reconnect the electric actuator for existing isolation valves to the new controller.
  - b. Monitor all control points listed on controls point list found on the drawings.
12. The following points will be required at all Variable Frequency Drives: start/stop, status, speed command and feedback, alarm.
13. All alarms shall generate emails and text messages to the building technicians. This feature (i.e. type of notification) shall be easily modifiable at the front end computer.
14. The front end computer shall also receive alarms and generate email / text message upon any controller failure and/ or loss of communication with any controller.
15. Existing control enclosure in chiller plant shall be reused. The existing refrigerant monitor in chiller plant (x) shall be connected to new DDC system (status).
- I. The controls contractor shall clearly explain the following:
- 1. Where do the graphics and schedules of operation reside?
  - 2. How does the remote internet access take place? (Through a web server, through the front end computer, etc.
  - 3. If remote access is through the front end computer and/or web server, what happens in case of hardware failure? Is there another way to access the system?
  - 4. What happens to equipment schedules in the event of controller failure or loss of communication?

5. How can the building engineer remotely access component controllers (AHU's, chillers, etc.)? Is software license required for remote monitoring and programming? If so, provide cost per license.
  6. From an operations standpoint, what happens if field-level controllers lose communication?
  7. What, if any, additional software/hardware/licensing is required to access or program the system on-site and off-site?
  8. Explain mode of communication for proposed system at the Ethernet level and field-controller level: LON or BACnet. What other systems' controllers, if any, will your proposed system interface with directly? Indirectly? Explain what would be needed for an indirect interface if possible.
- J. The controls contractor shall submit a proposed construction schedule based on a start date of May 1, 2013.

**PART 2 - GENERAL**

**2.1 SUMMARY**

- A. Furnish all labor, materials, equipment, and service necessary for a complete and operating Direct Digital Controls - DDC utilizing Direct Digital Controls as described herein. The DDC shall be capable of total integration of the facility infrastructure systems with user access to all system data either locally over a secure Intranet within the building or by remote access by a standard Web Browser over the Internet. This shall include the capability for HVAC control, and all trending, reporting and maintenance management functions related to normal building operations all as indicated on the drawings or elsewhere in this specification.
- B. All labor, material, equipment and software not specifically referred to herein are required to meet the functional intent of this specification, shall be provided without additional cost to the Owner.
- C. For future expansion of this facility the installed system must be open protocol so that other bidders, in the future, may offer other similar products that totally integrate into this base system for these future expansions.

**2.2 SYSTEM DESCRIPTION**

- A. The entire DDC System shall be comprised of a network of interoperable, stand-alone digital controllers communicating on an open protocol communication network to any computer within the facility and communicating via the Internet to a host computer in a remote location. The DDC System shall communicate to third party systems such as chillers, air-handling systems, water source heat pump systems, other energy management systems, and other building management related devices with open, interoperable communication capabilities.

**2.3 SUBMITTAL**

- A. Six copies of shop drawings of the entire control system shall be submitted and shall consist of a complete list of equipment and materials, including manufacturers catalog data sheets and installation instructions. Shop drawings shall also contain complete wiring and schematic diagrams (including riser), software descriptions, calculations, and any other details required to demonstrate that the system has been coordinated and will properly function as a system. Terminal identification for all control wiring shall be shown on the shop drawings. A complete

written Sequence of Operation as well as a hard copy graphical depiction of the application control programs shall also be included with the submittal package.

- B. Submittal shall also include a trunk cable schematic diagram depicting the Graphical User Interface (GUI) computer, control panel locations and a description of the communication type, media and protocol.
- C. Submittal shall also include a complete point list of all connected points to the DDC system.
- D. A complete submittal must be provided with the contractor's bid.
- E. Upon completion of the work, provide a complete set of 'as-built' drawings and application software on compact disk (CD). Drawings shall be provided as AutoCAD™ compatible files. Two copies of the 'as-built' drawings shall be provided in addition to the documents on compact disk.

## 2.4 SUB-CONTRACTOR RELATED WORK

### A. Division 15, Mechanical:

- 1. Providing taps and installation of wells in piping for control system sensors and flow measurement devices.
- 2. Installation of any control valves.
- 3. Removal of balancing valves as needed.
- 4. Insulation of new control devices with foam glass insulation.
- 5. Installation of any control system dampers.
- 6. Installation of any airflow monitors.

### B. Division 16, Electrical:

- 1. Provide any required motor starters, VFD's and disconnect switches (unless otherwise noted).
- 2. Provide all power wiring and conduit to all control devices (unless otherwise noted).

## 2.5 AGENCY AND CODE APPROVALS

A. All products of the DDC shall be provided with the following agency approvals. Verification that the approvals exist for all submitted products shall be provided with the submittal package. Systems or products not currently offering the following approvals are not acceptable.

- 1. UL-916; Energy Management Systems
- 2. FCC, Part 15, Subpart J, Class A Computing Devices

## 2.6 SOFTWARE LICENSE AGREEMENT

A. The Owner shall sign a copy of the manufacturer's standard software and firmware licensing agreement as a condition of this contract. Such license shall grant use of all programs and application software to Owner as defined by the manufacturer's license agreement, but shall protect manufacturer's rights to disclosure of trade secrets contained within such software.

## 2.7 DELIVERY, STORAGE AND HANDLING

- A. Provide factory-shipping cartons for each piece of equipment and control device. Maintain cartons through shipping, storage, and handling as required to prevent equipment damage. Store equipment and materials inside and protected from weather.

## 2.8 JOB CONDITIONS

- A. Cooperation with Other Trades: Coordinate the Work of this section with that of other sections to insure that the Work will be carried out in an orderly fashion. It shall be this Contractor's responsibility to check the Contract Documents for possible conflicts between his Work and that of other crafts in equipment location, pipe, duct and conduit runs, electrical outlets and fixtures, air diffusers, and structural and architectural features.

## 2.9 QUALITY ASSURANCE

- A. The Manufacturer of the DDC digital controllers shall provide documentation supporting compliance with ISO-9001 (Model for Quality Assurance in Design/Development, Production, Installation and Servicing). Product literature provided by the DDC digital controller manufacturer shall contain the ISO-9001 Certification Mark from the applicable registrar.
- B. The installer shall be an employee of the Controls System Contractor.
- C. Workmanship Quality: Supervise installation of controls accessories to be installed in pipes and ducts by other sections.
- D. Tests and inspections: Provide tests and a point by point inspection and verification prior to substantial completion to prove to the satisfaction of the Owner and Engineer that the controls and the HVAC Systems perform as specified.
- E. The Controls Contractor shall have at least 5 years experience installing and maintaining similar systems.
- F. All products used in this installation shall be new, currently under manufacture and shall be applied in similar installations for a minimum of 2 years. This installation shall not be used as a test site for any new products unless explicitly approved by the engineer in writing. Spare parts shall be available for a minimum of 5 years after completion of this contract.
- G. The Controls Contractor shall provide the names and qualifications of the Controls programmer, Controls Equipment Installer and Controls System Analyst assigned to the project.

## 2.10 ACCEPTABLE CONTROL SYSTEMS:

- A. Alerton as provided by CSSI, KMC as provided by ABC Controls, Delta Controls as provided by Advanced Automation Systems, Siebe Controls as provided by TEK-Plan and Johnson Controls as provided by QBC (Quality Building Controls).

## 2.11 SPECIFICATION NOMENCLATURE

- A. Acronyms used in this specification are as follows:

DDC	Direct Digital Control
NAC	Network Area Controller
IBC	Interoperable BACnet Controller
GUI	Graphical User Interface

POT	Portable Operator's Terminal
PMI	Power Measurement Interface
LAN	Local Area Network
OOT	Object Oriented Technology
PICS	Product Interoperability Compliance Statement

**PART 3 - MATERIALS**

3.1 GENERAL

- A. The DDC System shall be comprised of a network of interoperable, stand-alone digital controllers, a host computer system with graphical user interface software, portable operator terminals, modems, printers and other devices as specified herein.
- B. The installed system shall provide secure password access to all features, functions and data contained in the overall DDC.
- C. Performance Standards: The system as a minimum shall conform to the following:
  - 1. Graphic Display: The system shall display a graphic with all current data within no more than 5 seconds.
  - 2. Graphic Refresh: The system shall update a graphic with dynamic points with all current data within no more than 5 seconds.
  - 3. Object Command: The maximum time between the command of a binary point by the operator and the reaction by the device shall be less than 2 seconds. Analog objects should start to adjust within 2 seconds.
  - 4. Object Scan: All changes of state and change of analog values will be transmitted over the high speed network such that any data used or displayed at a controller or workstation will have been current within the previous 60 seconds.
  - 5. Alarm Response Time: The maximum time from when an object goes into alarm to when it is annunciated at the workstation shall not exceed 30 seconds. The time delay (0 to 30 sec) shall be adjustable at the front end computer.
  - 6. Program Execution Frequency: Applications shall be capable of running as often as once every 5 seconds. The Contractor shall be responsible for selecting execution times consistent with the mechanical process under control.
  - 7. Performance: Programmable Controllers shall be able to execute DDC PID control loops at a selectable frequency of at least once per second. The controller shall scan and update the process value and output generated by this calculation at the same frequency.
  - 8. Multiple Alarm Annunciation: All workstations on the network must receive alarms within 5 seconds of each other.
  - 9. Reporting Accuracy: The system shall report all values with an end-to-end accuracy as listed or better than those listed in Table 1.
  - 10. Stability of Control: Control Loops shall maintain measured variables at setpoint within the tolerances listed in Table 2.

Table 1: Reporting Accuracy	
Measured Variable	Reported Accuracy
Space Temperature	±0.5°C[±1°F]
Ducted Air	±0.5°C[±1°F]



Outside Air	±0.5°C[±2°F]
Dew Point	±1.5°C[±3°F]
Delta-T	±0.15°C[0.25°F]
Relative Humidity	±2% RH
Airflow (Terminal)	±10% of Full Scale (See Note 1)
Airflow (Measuring Stations)	±5% of Full Scale
Air Pressure (Ducts)	±25 Pa [±0.1" W.G.]
Air Pressure (Space)	±3 Pa [±0.01" W.G.]
Electrical	5% of Full Reading (See Note 2) (A, V, W, Power Factor)
Note 1: 10% - 100% of Scale	
Note 2: Not including utility – supplied meters	

Table 2: Control Stability and Accuracy		
Controlled Variable	Control Accuracy	Range of Medium
Air Pressure	±50 Pa [±0.2" W.G.]	0-1.5 kPa [0-6" W.G.]
	±3 Pa [±0.01" W.G.]	-25 to 25 Pa [-0.1 to 0.1" W.G.]
Air Flow	±100 CFM [+/- 5 %]	0-2000 CFM
Temperature	±0.5°C [±1.0°F]	
Humidity	±2% RH	

### 3.2 OPEN, INTEROPERABLE, INTEGRATED ARCHITECTURES

- A. The intent of this specification is to provide a peer-to-peer networked, stand-alone, distributed control system with the capability to integrate both the ANSI/ASHRAE Standard 135-2004 BACnet technology communication protocols in one open, interoperable system.
- B. The supplied host computer software system shall employ object-oriented technology (OOT) for representation of all data and control devices within the system. In addition, adherence to industry standards including ANSI / ASHRAE™ Standard 135-2004, BACnet or LonMark to assure interoperability between all system components is required. The system supplier must provide a PICS document showing the installed systems compliance level. Minimum compliance is Level 3.
- C. All components and controllers supplied under this contract shall be true “peer-to-peer” communicating devices. Components or controllers requiring “polling” by a host to pass data shall not be acceptable.
- D. The supplied system must incorporate the ability to access all data using Java enabled browsers without requiring proprietary operator interface and configuration programs. An Open Database Connectivity (ODBC) or Structured Query Language (SQL) compliant server database is required for all system database parameter storage. This data shall reside on a

supplier-installed server for all database access. Systems requiring proprietary database and user interface programs shall not be acceptable.

- E. A hierarchical topology is required to assure reasonable system response times and to manage the flow and sharing of data without unduly burdening the customer's internal Intranet network. Systems employing a "flat" single tiered architecture shall not be acceptable.
  - 1. Maximum acceptable response time from any alarm occurrence (at the point of origin) to the point of annunciation shall not exceed 5 seconds for network connected user interfaces.

### 3.3 NETWORKS

- A. The Local Area Network (LAN) shall be a minimum 100 Megabits/sec Ethernet network supporting BACnet, Java, XML, and HTTP for maximum flexibility for integration of building data with enterprise information systems and providing support for multiple Network Area Controllers (NACs), user workstations and, if specified, a local host computer system.
- B. Client access to the system shall be via the Internet from a remote location and from a local host computer system by direct connection to the Ethernet LAN. The DDC supplier must provide a connection to the Internet to enable this access via high-speed cable modem, asynchronous digital subscriber line (ADSL) modem, or via the Intranet to a corporate server providing access to an Internet Service Provider (ISP), where available.

### 3.4 NETWORK AREA CONTROLLER (NAC)

- A. The NAC shall provide the interface between the LAN the WEB and the field controllers.
- B. The NAC shall provide multiple user access to the system and support for ODBC or SQL. An embedded database resident on the NAC must be an ODBC-compliant database or must provide an ODBC data access or must provide an ODBC data access mechanism to read and write data stored within it. A minimum offering would be the documentation of database schemes to allow users to read/write data into other applications using appropriate ODBC syntax.
- C. The NAC must provide all tools for Java enabled Web browser access via the Intranet/Internet. It shall support a minimum of 5 simultaneous users in its minimum configuration. Multiple NAC configurations will use only one web access module.
- D. Event Alarm Notification and Actions
  - 1. The NAC shall provide alarm recognition, storage; routing, management, and analysis to supplement distributed capabilities of equipment or application specific controllers. Object alarm properties shall conform to the alarm properties as defined in the BACnet specification.
  - 2. The NAC shall be able to route any alarm condition to any defined user location whether connected to a local network or remote via dial-up, telephone connection, or wide-area network.
  - 3. Alarms shall have the capability to be routed to e-mail messages and paging services that support receipt of e-mail messages.

4. The NAC or operator workstation shall provide a timed (scheduled) routing of alarms by object, group or code.
5. The NAC shall include a master clock service for its subsystems and provide time synchronization for all distributed controllers. The NAC shall also accept time synchronization messages from trusted precision Atomic Internet Clock sites as may be selected to update its master clock time.

E. Data Collection and Storage

1. The NAC shall be provided with the ability to collect data for any property of any object and store this data for future use.
2. The data collection shall be performed by a log object that shall have, at a minimum, the following configurable properties:
  - a. Designating the log as interval or deviation.
  - b. For interval logs, the object shall be configured for time of day, day of week and the sample collection interval.
  - c. For deviation logs, the object shall be configured for the deviation of a variable to a fixed value. This value, when reached, will initiate logging of the object.
  - d. For all logs, provide the ability to set the maximum number of data stores and to set whether the log will stop collecting when full, or rollover the data on a first-in, first-out basis.

F. The building controller (NAC) shall include an operator display allowing the user to perform basic daily operations tasks on the building automation system. At a minimum this operator display shall:

1. Be installed on the building controller and require no additional power source.
2. Consist of a one-quarter VGA touch screen with 320 x 240 pixel resolution. The brightness and contrast of the back-lit touch screen shall be adjustable to allow for easy reading of information on the screen.
3. Be capable of having unique user identification and passwords that can be programmed to limit access to the system and operator functions.
4. Display the current state of an input/output point and equipment controller connected to the system.
5. Give the operator the ability to override the current state of an output point or HVAC equipment controller connected to the building controller.
6. Allow the operator to modify the start and stop times of any time-of-day schedule within the system.
7. Provide a visual indication that a system alarm exists and allow for an optional audible alarm annunciation.
8. Provide the ability to view and acknowledge alarms that are annunciated at that building controller.

9. Allow the operator to view custom graphical displays with dynamic status information.
10. Automatically update displayed system information every 10 seconds.
11. Where NAC without displays are proposed to be utilized, a portable operator's terminal with service too software that provides for the basic daily operational tasks shall be included on the bid. This shall be clearly indicated on the proposal.

### 3.6 INTEROPERABLE BACnet CONTROLLER (IBC)

- A. Controls shall be microprocessor based Interoperable BACnet Digital Controllers (IBC), providing interoperability with all BACnet and BACnet devices. IBC's shall be provided for any equipment applications as required, as shown on the drawings. IBC's shall be based on ASHRAE Standard 135-2004 communication protocol. The application control program shall be resident within the same enclosure as the input/output circuitry, which translates the sensor signals.
- B. All IBC's shall be fully application programmable utilizing graphical objects. All control sequences programmed into the IBC shall be stored in non-volatile memory, which is not dependent upon the presence of a battery, to be retained. Systems that only allow selection of sequences from a library or table are not acceptable.
- C. The IBC shall be provided with the ability to interface with the POT. The interface port shall allow the POT to have full functionality as described in POT section of this specification.
- D. The IBC's shall communicate with the NAC at a baud rate of not less than 78.8K baud. The IBC shall have as a minimum ambient operating temperature range of 32 to 122 degrees Fahrenheit.
- E. The IBC shall be fully supported by the Graphical User Interface (GUI).
- F. All input/output signals shall be directly hardwired to the IBC. All controllers shall employ a universal input configuration that allows for flexibility in application ranging from dry contact, resistive and voltage/current-source inputs. If universal points are not available, a minimum of one spare input point (each) of the dry contact, resistive and analog voltage/current types must be provided for each input point utilized. IBC devices shall provide digital and analog output types and quantities consistent with the requirements of the application requirements. Troubleshooting of input/output signals shall be easily executed with the POT or a volt-ohm meter (VOM). All I/O points shall be utilized by the local ILC or shall be available as I/O points for other controllers throughout the network.

### 3.7 SYSTEM PROGRAMMING

- A. A library of control, application, and graphical objects may be utilized to enable the creation of all applications and user interface screens. Applications are to be created by selecting the desired control objects from the library, dragging or pasting them on the screen, and "wiring" them together using a built in graphical connection tool. Completed applications may be stored in the library for future use. Graphical User screens are created in the same fashion. Data for the user screens is obtained by graphically linking the user screen objects to the application objects to provide "real-time" data updates. Any real-time data value or object property may be connected to display its current value on a user screen. Systems that utilize a "basic" language format are acceptable as well.

## B. Programming Methods:

1. Provide the capability to copy objects from the supplied libraries, or from a user-defined library to the user's application. Objects shall be linked by a graphical soft-wiring scheme by dragging a link from one object to another. Object links will support one-to-one, many-to-one, or one-to-many relationships. Linked objects shall maintain their connections to other objects regardless of where they positioned on the page and shall show link identification for links to objects on other pages for easy identification. Links will vary in color depending on the type of link; i.e., internal, external, hardware, etc.
2. Configuration of each object will be done through the object's property sheet using fill-in the blank fields, list boxes, and selection buttons.
3. The software shall provide the ability to view the logic in a monitor mode. When on-line, the monitor mode will provide the ability to view the logic in real time for easy diagnosis of the logic execution. When off-line, the monitor mode will allow the user to set values to inputs and monitor the logic for diagnosing execution before it is applied to the system.
4. All programming shall be done in real-time.
5. The system shall support object duplication within a customer's database. An application, once configured, can be copied and pasted for easy re-use and duplication. All links, other than to the hardware, shall be maintained during duplication.

## 3.8 GRAPHICAL USER INTERFACE SOFTWARE

- A. A graphical user interface shall be included with the host computer system software. This user interface shall allow, with proper password access, full interaction with the system including, but not limited to, viewing and modifying data, database administration, configuration of communications parameters, password and security administration, programming and configuration of objects, receipt, routing and acknowledgement of alarms, and development of graphic screens.
- B. The user interface shall employ browser-like functionality for ease of navigation. It shall include a tree view for quick viewing of, and access to, the hierarchical structure of the database. In addition, menu-pull downs, and toolbars shall employ buttons, commands and navigation techniques similar to those in a commercially available Web Browser. These shall include, but are not limited to, forward/backward buttons, home button, and a context sensitive locator line (similar to a URL line), that displays the location and the selected object identification.
  1. Graphic screens shall be developed using any drawing package capable of generating a .GIF, .BMP, or .JPG file format. Use of proprietary graphic file formats shall not be acceptable. In addition to, or in lieu of, a graphic background, the user interface shall support the use of scanned pictures.
  2. Graphics developed for the user interface shall be capable of being used by a standard Web Browser client, without the need to develop additional graphic screens specifically for the Web Browser. Graphics used by the Web Browser client(s) shall be capable of being edited using a standard HTML document editor.
  3. Graphic screens shall have the capability to be overlaid with text; real-time values command and adjust, animation, color spectrum, logs, graphs, HTML document links, and schedule graphic objects, as well as links to other graphic screens.

4. Modifying common application objects, such as schedules, calendars, and set points shall be accomplished in a graphical manner.
5. Schedule times will be adjusted using a graphical slider, without requiring any keyboard entry from the operator.
6. Using a graphical calendar, without requiring any keyboard entry from the operator, shall set holidays.
7. Commands issued to start and stop binary objects shall be done by right-clicking the selected object and selecting the appropriate command from the pop-up menu. No entry of text shall be required.
8. Right-clicking the selected object and using a graphical slider to adjust the value shall do adjustments to analog objects, such as set points. No entry of text shall be required.

C. Alarm Console:

1. The system will be provided with a dedicated alarm window or console. This window will notify the operator of an alarm condition, and allow the operator to view details of the alarm and acknowledge the alarm.
2. A separate alarm notification window will supersede all other windows on the desktop and shall not be capable of being minimized or closed by the operator. This window will notify the operator of new alarms and un-acknowledged alarms. Alarm notification windows or banners that can be minimized or closed by the operator shall not be acceptable.

### 3.9 WEB BROWSER CLIENTS

- A. The system shall be capable of supporting an unlimited number of clients using a standard Web Browser such as Internet Explorer™. Systems requiring additional software resident on the client machine or manufacturer-specific browsers shall not be acceptable.
- B. The Web Browser client shall support at a minimum, the following functions:
  1. User log-on identification and password shall be required. If an unauthorized user attempts access, a blank web page shall be displayed. Security using Java authentication techniques to prevent unauthorized access shall be implemented.
  2. Graphical screens developed for the GUI shall be the same screens used for the Web Browser client. Storage of the graphical screens shall be in the system, without requiring any graphics to be stored on the client machine. Systems that require graphics storage on each client are not acceptable.
  3. Depending on user access privileges, the user shall be able to view data, modify and command objects such as start/stop, and adjust set points. In addition, users can be provided with the ability to view logs and view and acknowledge alarms.
  4. The system shall provide the capability to specify a user's (as determined by the log-on user identification) home page. The capability to limit the user to just their home page shall be provided. From the home page, links to other views, or pages in the system shall be possible.

5. Graphic screens on the Web Browser client shall support hypertext links to other Web pages on other Internet or Intranet sites.

### 3.10 OBJECT LIBRARIES

- A. A standard library of objects shall be included for development and setup of application logic, user interface displays, system services, and communication networks.
- B. The objects in this library shall be capable of being copied and pasted into the user's database and shall be organized according to their function. In addition, the user shall have the capability to group objects created in their application and store the new instances of these objects in a user-defined library.
- C. In addition to the standard libraries specified here, the supplier of the system shall maintain an on-line accessible (over the Internet) library, available to all registered users to provide new or updated objects and applications as they are developed.
- D. The library shall include applications or objects for the following functions:
  1. Scheduling Object. Provide a BACnet compliant, 7-day plus holiday & temporary scheduling object to allow for a minimum of 10 on/off events per day. Data entry to be by graphical sliders to speed creation and selection of on-off events.
  2. Calendar Object. Provide a BACnet compliant 12-month calendar object to allow for holiday or special event data entry. Data entry to be by graphical "point-and-click" selection. This object must be "linkable" to any or all scheduling objects for effective event control.
  3. Duty Cycling Object. Provide a universal duty cycle object to allow repetitive on/off time control of equipment as an energy conserving measure. Any number of these objects may be created to control equipment at varying intervals
  4. Temperature Override Object. Provide a temperature override object that is capable of overriding equipment turned off by other energy saving programs (scheduling, duty cycling etc.) to maintain occupant comfort or for equipment freeze protection.
  5. Start-Stop Time Optimization Object. Provide a start-stop time optimization object to provide the capability of starting equipment just early enough to bring space conditions to desired conditions by the scheduled occupancy time. Also, allow equipment to be stopped before the scheduled un-occupancy time just far enough ahead to take advantage of the building's "flywheel" effect for energy savings. Provide automatic tuning of all start / stop time object properties based on the previous day's performance.
  6. Demand Limiting Object. Provide a comprehensive demand-limiting object that is capable of controlling demand for any selected energy utility (electric, oil, and gas). The object shall provide the capability of monitoring a demand value and predicting (by use of a sliding window prediction algorithm) the demand at the end of the user defined interval period (1-60 minutes). This object shall also accommodate a utility meter time sync pulse for fixed interval demand control. Upon a prediction that will exceed the user defined demand limit (supply a minimum of 6 per day), the demand limiting object shall issue shed commands to either turn off user specified loads or modify equipment set points to effect the desired energy reduction. If the list of sheddable equipment is not enough to reduce the demand to below the set point, a message shall be displayed on the users screen (as an alarm) instructing the user to take manual actions to maintain the desired demand.

The shed lists are specified by the user and shall be selectable to be shed in either a fixed or rotating order to control which equipment is shed the most often. Upon suitable reductions in demand, the demand-limiting object shall restore the equipment that was shed in the reverse order in which it was shed. Each sheddable object shall have a minimum and maximum shed time property to effect both equipment protection and occupant comfort.

7. Utilizing math operators within a “basic” structure to create any of the above functions is also acceptable.

E. The library shall include control objects for the following functions at a minimum:

1. Analog Input Object - Minimum requirement is to meet the BACnet standard for data sharing. Allow high, low and failure limits to be assigned for alarming. Also, provide a time delay filter property to prevent nuisance alarms caused by temporary excursions above or below the user defined alarm limits.
2. Analog Output Object - Minimum requirement is to meet the BACnet standard for data sharing.
3. Binary Input Object - Minimum requirement is to meet the BACnet standard for data sharing. The user must be able to specify either input condition for alarming. This object must also include the capability to record equipment run-time by counting the amount of time the hardware input is in an “on” condition. The user must be able to specify either input condition as the “on” condition.
4. Binary Output Object - Minimum requirement is to meet the BACnet standard for data sharing. Properties to enable minimum on and off times for equipment protection as well as interstart delay must be provided. The BACnet Command Prioritization priority scheme must also be incorporated to allow multiple control applications to execute commands on this object with the highest priority command being invoked. Provide sixteen levels of priority as a minimum. Systems not employing this contention resolution shall not be acceptable.
5. PID Control Loop Object - Minimum requirement is to meet the BACnet standard for data sharing. Each individual property must be adjustable as well as to be disabled to allow proportional control only, or proportional with integral control, as well as proportional, integral and derivative control.
6. Comparison Object - Allow a minimum of two analog objects to be compared to select either the highest, lowest, or equality between the two linked inputs. Also, allow limits to be applied to the output value for alarm generation.
7. Math Object - Allow a minimum of four analog objects to be tested for the minimum or maximum, or the sum, difference, or average of linked objects. Also, allow limits to be applied to the output value for alarm generation.
8. Custom Programming Objects - Provide a blank object template for the creation of new custom objects to meet specific user application requirements. This object must provide a simple BASIC-like programming language that is used to define object behavior. Provide a library of functions including math and logic functions, string manipulation, and e-mail as a minimum. Also, provide a comprehensive on-line debug tool to allow complete testing of the new object. Allow new objects to be stored in the library for re-use.



9. Interlock Object - Provide an interlock object that provides a means of coordination of objects within a piece of equipment such as an Air Handler or other similar types of equipment. An example is to link the return fan to the supply fan such that when the supply fan is started, the return fan object is also started automatically without the user having to issue separate commands or to link each object to a schedule object. In addition, the control loops, damper objects, and alarm monitoring (such as return air, supply air, and mixed air temperature objects) will be inhibited from alarming during a user-defined period after startup to allow for stabilization. When the air handler is stopped, the interlocked return fan is also stopped, the outside air damper is closed, and other related objects within the air handler unit are inhibited from alarming thereby eliminating nuisance alarms during the off period.
10. Temperature Override Object - Provide an object whose purpose is to provide the capability of overriding a binary output to an "On" state in the event a user specified high or low limit value is exceeded. This object is to be linked to the desired binary output object as well as to an analog object for temperature monitoring, to cause the override to be enabled. This object will execute a Start command at the Temperature Override level of start/stop command priority unless changed by the user.
11. Composite Object - Provide a container object that allows a collection of objects representing an application to be encapsulated to protect the application from tampering, or to more easily represent large applications. This object must have the ability to allow the user to select the appropriate parameters of the "contained" application that are represented on the graphical shell of this container.

F. The object library shall include objects to support BACnet devices. These devices shall include, but not be limited to, devices for control of HVAC, lighting, access, and metering.

### 3.11 POWER FAILURE (typical of all controllers):

- A. In the event of the loss of normal power there shall be an orderly shutdown of all stand-alone DDC panels to prevent the loss of database or operating system software. Non-volatile memory shall be incorporated for all critical controller configuration data. Battery back-up of the controller configuration shall not be permitted. Regardless of your approval as a manufacturer, in the event that the stand-alone controllers maintain their programs via batteries, this shall not be acceptable. Programs shall be maintained in non-volatile EEPROMS only. Uninterruptable power supply units with minimum fifteen minutes runtime shall be provided for the main DDC panel, as well as all major equipment: chillers, pumps, fans, air handlers. All setpoints, including Operator overrides shall be maintained throughout a power loss event. Upon restoration of normal power, the DDC panel shall automatically resume full operation without manual intervention.

### 3.12 HOST COMPUTER HARDWARE (PC)

- A. The PC shall be an Intel Pentium, minimum processing speed of 2.4 GHz with two or more cores, 4 GB RAM expandable to 8 GB and a 256-gigabyte minimum hard drive, integrated Ethernet. It shall include a 48X CD-ROM drive, 3.5" floppy drive, 1-parallel ports, 2-asynchronous serial ports and 4-USB ports. A minimum 17", LCD screen and a minimum 600 KVA UPS battery back-up shall also be included. Windows 7.
- B. A system printer shall be provided. Printer shall be ink jet type with a minimum 1200 x 1200-dpi resolution and rated for 20-PPM print speed minimum. The printer shall be a HP 6122 or approved equal.

### 3.13 CONTROL DAMPER ACTUATORS

- A. Furnished and installed by the controls contractor: Two-position or proportional electric actuators shall be direct-mount type sized to provide a minimum of 5 in-lb torque per square foot of damper area. Damper actuators shall be spring return type as manufactured by Belimo or approved equal.

### 3.14 CONTROL VALVES

- A. Control valves shall be furnished by the controls contractor and installed by the mechanical contractor. Provide 2-way pattern, pressure independent, constructed for tight shutoff. Two-position valves shall be 'line' size. Proportional control valves shall be sized for a maximum pressure drop of 5.0 psi at rated flow. Valves with sizes up to and including 2 inches shall be "screwed" configuration and 2-1/2 inch and larger valves shall be "flanged" configuration. Electrically controlled valves shall include actuators sized for tight shut-off against system pressures and furnished with integral sensors for indication of valve position (percent open). Provide actuators only where 3-way valves remain. All new control valves and valve actuators shall be provided by Belimo or approved equal.

### 3.15 TEMPERATURE SENSORS

- A. Thermostats shall provide temperature indication to the digital controller; provide the capability for a software-limited set point adjustment and operation override capability. An integral LCD shall annunciate current room temperature and set point as well as override status indication. In addition, the thermostat shall include a port for connection of the portable operator's terminal described elsewhere in this specification.
- B. Duct Mount, Pipe Mount and Outside Air Temperature Sensors: 10,000-ohm thermistor (or 1000 ohm RTD) temperature sensors with an accuracy of  $\pm 0.5^\circ$  F. Outside air sensors shall be mounted in an outdoor housing and shall include an integral sun shield.

### 3.16 OTHER DEVICES

- A. Current Sensitive Switches(DI): Solid state, split core (or solid core) current switch that operates when the current level (sensed by the internal current transformer) exceeds the adjustable trip point. Current switch to include an integral LED for indication of trip condition and a current level below trip set point. Select switch range so that the sensed current falls in the center of the range.
- B. Current Sensitive Transducer(AI): Solid state, split core (or solid core) current transducer that continuously monitors the current flow and transmits this reading (4-20 ma) to the controller. Select transducer range so that the sensed current falls in the center of the range.
- C. Power Monitoring Interface: The Power Measurement Interface (PMI) device shall include the appropriate current and potential (voltage) transformers. The PMI shall be certified under UL-3111. The PMI shall perform continuous true RMS measurement based on 32 samples-per-cycle sampling on all voltage and current signals. The PMI shall provide outputs to the FMCS based on the measurement and calculation of the following parameters: (a) current for each phase and average of all three phases, (b) kW for each phase and total of all three phases, (c) power factor for each phase and all three phases, (d) percent voltage unbalance and (e) percent current unbalance. These output values shall be communicated to the FMCS over the open-protocol bus.

- D. Water Flow Meters: Water flow meters shall be in-line electromagnetic flow meters which translate liquid motion into electronic output signals proportional to the flow sensed. Accuracy shall be  $\pm 0.4\%$  of actual reading from 0.4 to 20 feet per second flow velocities. Onicon or approved equal.
- E. Humidity sensors shall be 2% accuracy with a 4-20 ma output and shall be wall, duct or outdoor mounting as per plans. Locate at the direction of the engineer.
- F. Temperature Control Panels: Furnish metal temperature control panels with locking doors for mounting all devices as shown. All external wiring shall be connected to terminal strips mounted within the panel, in addition to the terminal strips that may be on the controller board. Provide engraved phenolic nameplates identifying all devices mounted on the face of control panels. A complete set of 'as-built' control drawings (relating to the controls within that panel) shall be furnished within each control panel. No control devices, controllers or equipment will be mounted directly, without a control enclosure and terminal strip.
- G. Water Flow Sensor: Coordinate with the chiller manufacturer O&M manual for specific requirements. Provide sensor manufactured by PENN (a division of Johnson Controls) if the chiller manufacturer does not have a specific requirement.
- H. Airflow Monitor: Provide a duct-mounted airflow monitor capable of up to 16 monitoring points and  $\pm 2\%$  accuracy with 0.25% repeatability. The air monitor shall have sampling openings larger than  $\frac{1}{2}$ " in order to ensure that the accuracy does not deteriorate by dirt and debris in the airstream over time. The sensor probe shall be removable without the need for an access panel for cleaning. Provide Ebtron Gold Series, or approved equal.

### 3.17 EXECUTION OF PROJECT

#### A. Installation:

1. All work described in this section shall be installed, wired, circuit tested and calibrated by factory certified technicians qualified for this work and in the regular employment of the temperature control system manufacturer or its exclusive factory authorized installing contracting field office.
2. Actual physical field wiring, conduit, etc. may be performed by a controls installation sub-contractor under the direct supervision, contract and direction of the installing.
3. The installing office shall have a minimum of five (5) years installation experience with the manufacturer and shall provide documentation in submittal package verifying longevity of the installing company's relationship with the manufacturer. Supervision, calibration and checkout of the system shall be by the employees of the local exclusive factory authorized temperature control contracting field office.
4. Install system and materials in accordance with manufacturer's instructions, and as detailed on the project drawing set.
5. Low voltage electrical connections to control equipment shown specified or shown on the control diagrams shall be furnished and installed by the Controls contractor in accordance with these specifications.
6. Equipment furnished by the HVAC Contractor that is normally wired before installation shall be furnished completely wired. Control wiring normally performed in the field will be furnished and installed by the controls contractor.

7. All control devices shall be installed inside of rated control enclosures. Enclosures shall be sized to accommodate the control devices, plus room for at least one expansion device of the same type. No control devices, programmable controllers, interface boards, etc. shall be mounted directly to any mechanical room wall or any piece of, mechanical equipment without a protective enclosure. Each enclosure shall have a terminal strip, sized for at least 18 ga. Wire, for landing field wiring; that is separate from the controller terminal strip as to accommodate removal of the controller without de-wiring the controller. These terminal strips are required even if the controller has "pluggable" wiring terminals.
8. All control devices mounted on the face of control panels shall be clearly identified as to function and system served with permanently engraved phenolic labels. These devices are limited to keypads and other operator interfaces.
9. The front end workstation and all controllers shall have surge protection and battery back-up.

#### B. Wiring:

1. All electrical control wiring to the control panels shall be the responsibility of the DDC contractor.
2. The electrical contractor (Div. 16) shall furnish all power wiring to the control panels.
3. All wiring shall be in accordance with the National Electrical Code and any applicable local codes. As part of the base bid, plenum rated cable wiring (for low voltage control wiring) is allowed and it shall be run parallel to or at right angles to the structure, properly supported and installed in a neat and workmanlike manner, in concealed spaces only and run within conduit where exposed. An add alternate price shall be provided for running low voltage wiring in conduit within concealed areas.

#### C. Warranty:

1. Equipment, materials and workmanship incorporated into the work shall be warranted for one year from the time of system acceptance.
2. Within the warranty period, upon notice by the Owner, any defects in the DDC due to faulty materials, methods of installation or workmanship shall be promptly (within 24 to 48 hours after receipt of notice) repaired or replaced by the Controls contractor at no expense to the Owner.

#### D. Warranty Access:

1. The Owner shall grant to the Controls contractor, reasonable access to the DDC during the warranty period.

#### E. System Commissioning:

1. Upon completion of the installation, the Controls contractor shall load all system software and start-up the system. The Controls contractor shall perform all necessary calibration, testing and de-bugging and perform all required operational checks to insure that the system is functioning in full accordance with these specifications.

2. The Controls contractor shall perform tests to verify proper performance of components, routines, and points. Repeat tests until proper performance results. This testing shall include a point-by-point log to validate 100% of the input and output points of the DDC system operation.
3. Upon completion of the performance tests described above, repeat these tests, point by point as described in the validation log above in presence of Owner's Representative and engineer. Properly schedule these tests so testing is complete at a time directed by the Owner's Representative. This witness test shall be scheduled at the discretion of the owner.
4. System Acceptance: Satisfactory completion is when the Controls contractor has performed successfully all the required testing to show performance compliance with the requirements of the Contract Documents to the satisfaction of the Owner's Representative. System acceptance shall be contingent upon completion and review of all corrected deficiencies.

F. Operator Instruction, Training:

1. During system commissioning and at such time acceptable performance of the DDC hardware and software has been established the Controls contractor shall provide on-site operator instruction to the owner's operating personnel. Operator instruction shall be done during normal working hours and shall be performed by a competent representative familiar with the system hardware, software and accessories.
2. The Controls contractor shall provide 40 hours of instruction to the owner's designated personnel on the operation of the DDC and describe its intended use with respect to the programmed functions specified. Operator orientation of the DDC shall include, but not be limited to; the overall operation program, equipment functions (both individually and as part of the total integrated system), commands, systems generation, advisories, and appropriate operator intervention required in responding to the System's operation.
3. The training shall be in three sessions as follows:
  - a. Initial Training: (one 8 hour period of two 4 hour periods at the owner's discretion) after system is started up and at least one week before first acceptance test. Manual shall have been submitted at least two weeks prior to training so that the owners' personnel can start to familiarize them with the system before classroom instruction begins.
  - b. First Follow-Up Training: Three sessions (12 hours total) approximately two weeks after initial training, and before Formal Acceptance. These sessions will deal with more advanced topics and answer questions.
  - c. Warranty Follow Up: Three sessions (20 hours total) in five 4-hour increments, to be scheduled at the request of the owner during the one-year warranty period. These sessions shall cover topics as requested by the owner such as; how to add additional points, create and gather data for trends, graphic screen generation or modification of control routines.
4. All training sessions shall be 4 hours long and shall be conducted in the morning hours.

END OF SECTION 15975

SECTION 01290 – PAYMENT PROCEDURES

## PART 1 – GENERAL

### 1.1 OWNER ISSUED PROJECT REQUIREMENTS, CONDITIONS, SPECIFICATIONS

- A. The contract between Owner and Prime Contractor, or any other documents issued directly by the Owner as a part of this project supersede the provisions of this section.

### 1.2 RELATED DOCUMENTS:

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

### 1.3 SUMMARY:

- A. This Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

### 1.4 SCHEDULE OF VALUES:

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Construction Schedule.
  - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with Continuation Sheets.
    - b. Submittals Schedule.
  - 2. Submit the Schedule of Values to Engineer at earliest possible date but no later than (7) seven days before the date scheduled for submittal of first Applications for Payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section and Subsection.
  - 1. Provide breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Total Contract Sum shall equal Guaranteed Maximum Price by the Owner and as modified by change orders and direct purchase authorization.
  - 2. Provide a separate line item in the Schedule of Values for each item of work for each of the eleven buildings, eighteen including the alternates.
  - 3. Provide a separate line item in the Schedule of Values for each part of the work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - 4. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of subcontractor's overhead and profit for each item. Reflect deductions from each line item for Direct Purchase Orders issued by the Owner, and other accepted contingency adjustments and change orders.
  - 5. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

### 1.5 APPLICATIONS FOR PAYMENT:

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment shall be in accordance with the Schedule for Monthly Payments as issued by the Owner. The period of construction work covered by each Application for Payment is the period beginning with date of the date of review of the previous Application for Payment and extending through the date of review of the current Application for Payment.
- C. Application for Payment shall not include items that might be anticipated but are not yet included in the work.
- D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets or similarly formatted documents as form for Applications for Payment.
- E. Application Preparation: Complete every entry, notarized and executed by a person authorized to sign legal documents on behalf of the Prime Contractor.
  1. Entries shall match data on the Schedule of Values and Construction Schedule. Use updated schedules if revisions were made.
  2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- F. Transmittal: Submit (4) signed and notarized original copies of each Application for Payment to the Engineer by twelve o'clock noon on the date of the Deadline for Submission as set forth in the Owner's Schedule of Monthly Payments. Applications that are not complete, contain errors or omissions or that are not timely received by the Engineer may result in non payment.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
  1. Contractor's Construction Schedule.
  2. Submittals Schedule (preliminary if not final).
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the work claimed as substantially complete.
  1. Include documentation supporting claim that the work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
  2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designate portions of the work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
  1. Evidence of completion of project closeout requirements including delivery of all required as-built documents, maintenance and operations manuals.
  2. Updated final statement, accounting for final changes to the Contract Sum and final contingency adjustments if any.
  3. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  4. AIA Document G707, "Consent of Surety to Final Payment."
  5. Evidence that claims have been settled.
  6. Final, liquidated damages settlement statement if any.

END OF TEXT



**ATTACHMENT II  
PRICE PAGE  
DOH12-049**

A single award shall be made to the responsive, responsible bidder offering the **Lowest Grand Total** (includes Alternates) for the items/services requested in this ITB.

<u>Description</u>	<u>Total Cost</u>
<b>Provide all labor and materials to upgrade climate control systems in the Main &amp; Annex Buildings.</b>	\$ _____
<b>Alternate 1</b>	\$ _____
<b>Alternate 2</b>	\$ _____
<b>Alternate 3</b>	\$ _____
<b>Alternate 4</b>	\$ _____

**GRAND TOTAL (includes the four (4) Alternates):**      \$ \_\_\_\_\_

BY AFFIXING MY SIGNATURE ON THIS BID, I HEREBY STATE THAT I HAVE READ ALL BID TERMS, CONDITIONS AND SPECIFICATIONS INCLUDING PUR 1000 AND PUR 1001. I HEREBY CERTIFY THAT MY COMPANY, ITS EMPLOYEES, AND ITS PRINCIPALS AGREE TO ABIDE TO ALL OF THE TERMS, CONDITIONS, PROVISIONS AND SPECIFICATIONS DURING THE COMPETITIVE SOLICITATION AND CONTRACTING PROCESS (IF APPLICABLE) INCLUDING THOSE CONTAINED IN THE ATTACHED STANDARD CONTRACT/PURCHASE ORDER. I CERTIFY THAT I WILL PROVIDE AND DELIVER TO THE LOCATIONS SPECIFIED IN THIS BID.

AUTHORIZED REPRESENTATIVE: \_\_\_\_\_  
(Signature)

NAME AND TITLE: \_\_\_\_\_  
(Print or Type)

COMPANY: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

FAX NUMBER: \_\_\_\_\_

**ATTACHMENT III  
EXPERIENCE FORM  
DOH12-049**

Vendor's/Respondent's Name: \_\_\_\_\_

Vendors/Respondents are required to submit with the proposal, contact information for three (3) entities it has provided with services similar to those requested in this solicitation. The Department reserves the right to contact any and all entities in the course of this solicitation evaluation in order to make a fitness determination. The Department will make only two attempts to contact each entity. The Department's determination is not subject to review or challenge.

1.) Name of Company/Agency: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Address: \_\_\_\_\_

Email Address: \_\_\_\_\_

2.) Name of Company/Agency: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Address: \_\_\_\_\_

Email Address: \_\_\_\_\_

3.) Name of Company/Agency: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Address: \_\_\_\_\_

Email Address: \_\_\_\_\_

\_\_\_\_\_  
Signature of Authorized Representative

**ATTACHMENT IV  
REQUIRED CERTIFICATIONS  
DOH12-049**

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**ACCEPTANCE OF TERMS, CONDITIONS, PROVISIONS AND SPECIFICATIONS**

BY AFFIXING MY SIGNATURE ON THIS PROPOSAL, I HEREBY STATE THAT I HAVE READ THE ENTIRE *ITB* TERMS, CONDITIONS, PROVISIONS AND SPECIFICATIONS INCLUDING PUR 1000 AND PUR 1001. I hereby certify that my company, its employees, and its principals agree to abide to all of the terms, conditions, provisions and specifications during the competitive solicitation and contracting process(if applicable) including those contained in the attached Standard Contract (Attachment VI).

\_\_\_\_\_  
Signature of Authorized Official

\_\_\_\_\_  
Date

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**STATEMENT OF NO INVOLVEMENT  
CONFLICT OF INTEREST STATEMENT (NON-COLLUSION)**

I hereby certify that my company, its employees, and its principals, had no involvement in performing a feasibility study of the implementation of the subject contract, in the drafting of this solicitation document, or in developing the subject program. Further, my company, its employees, and principals, engaged in no collusion in the development of the instant proposal or offer. This proposal or offer is made in good faith and there has been no violation of the provisions of Chapter 287, Florida Statutes, the Administrative Code Rules promulgated pursuant thereto, or any procurement policy of the Department of Health. I certify I have full authority to legally bind the Respondent or Offeror to the provisions of this proposal or offer.

\_\_\_\_\_  
Signature of Authorized Official

\_\_\_\_\_  
Date

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\*An authorized official is an officer of the vendor's organization who has legal authority to bind the organization to the provisions of the proposals. This usually is the President, Chairman of the Board, or owner of the entity. A document establishing delegated authority must be included with the proposal if signed by other than the President, Chairman or owner.

\*\* The terms and conditions contained in the Standard Contract or Direct order are non-negotiable. If a vendor fails to certify their agreement with these terms and conditions and or abide by, their response shall be deemed non-responsive.

**ATTACHMENT V  
DEPARTMENT OF HEALTH REPORTING OF SUBCONTRACTOR EXPENDITURES  
DOH12-049**

PRIME CONTRACTORS SHALL REPORT ALL SUBCONTRACTING EXPENDITURES REGARDLESS OF VENDOR DESIGNATION (SEE PAGE 2 FOR TYPES OF DESIGNATIONS)

*PLEASE COMPLETE AND REMIT THIS REPORT TO YOUR DOH CONTRACT MANAGER.*

**COMPANY NAME:** \_\_\_\_\_

**DEPARTMENT OF HEALTH CONTRACT NUMBER:** \_\_\_\_\_

**REPORTING PERIOD-FROM:** \_\_\_\_\_ **TO:** \_\_\_\_\_

<b>SUBCONTRACTOR'S/VENDORNAME &amp; ADDRESS</b>	<b>FEID NO.</b>	<b>EXPENDITURE AMOUNT</b>

NOTE: YOU MAY USE A SEPARATE SHEET

**DOH USE ONLY - REPORTING ENTITY (DIVISION, OFFICE, CHD, ETC.):**  
PLEASE SUBMIT ALL SUBCONTRACT FORMS TO: CENTRAL PURCHASING  
OFFICE, ATTN: MAUREEN LIVINGS, MWBE COORDINATOR, BUREAU OF  
GENERAL SERVICES, 4052 BALD CYPRESS WAY, STE. 310, TALLAHASSEE, FL.  
32399-1734

## 1. DESIGNATIONS:

**MINORITY PERSON** as defined by [Section 288.703](#) FS; means a lawful, permanent resident of Florida who is, one of the following:

- (A) **AN AFRICAN AMERICAN**, a person having origins in any of the racial groups of the African Diaspora.
- (B) **A HISPANIC AMERICAN**, a person of Spanish or Portuguese cultures with origins in Spain, Portugal, Mexico, South America, Central America or the Caribbean regardless of race.
- (C) **AN ASIAN AMERICAN**, a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands, including the Hawaiian Islands prior to 1778.
- (D) **A NATIVE AMERICAN**, a person who has origins in any of the Indian Tribes of North America prior to 1835, upon presentation of proper documentation thereof as established by rule of the Department of Management Services
- (E) **AN AMERICAN WOMAN**.

**CERTIFIED MINORITY BUSINESS ENTERPRISE** as defined by [Section 288.703](#) FS, means a small business which is at least 51 percent owned and operated by a minority person(s), which has been certified by the certifying organization or jurisdiction in accordance with Section 287.0943(1).

**SERVICE-DISABLED VETERAN BUSINESS ENTERPRISE:** As defined by [Section 295.187](#), FS, means an Independently owned and operated business that employees 200 or fewer permanent full-time employees; Is organized to engage in commercial transactions; Is domiciled in Florida; Is at least 51% owned by one or more service-disabled veterans; and, who's management and daily business operations of which are controlled by one or more service-disabled veterans or, for a service-disabled veteran with a permanent and total disability, by the spouse or permanent caregiver of the veteran.

**CERTIFIED SERVICE-DISABLED VETERAN BUSINESS ENTERPRISE** as defined by [Section 295.187](#), FS means a business that has been certified by the Department of Management Services to be a service-disabled veteran business enterprise

**SMALL BUSINESS** means an independently owned and operated business concern that employs 100 or fewer permanent full-time employees and has a net worth of not more than \$3,000,000 and an average net income, after federal income taxes, of not more than \$2,000,000.

**NON-CERTIFIED MINORITY BUSINESS** means a small business which is at least 51 percent owned and operated by a minority person(s).

**MINORITY NON-PROFIT ORGANIZATION** means a not-for-profit organization that has at least 51 percent minority board of directors, at least 51 percent minority officers, or at least 51 percent minority community served.

## II. INSTRUCTIONS TO PRIME CONTRACTORS:

- A) ENTER THE COMPANY NAME AS IT APPEARS ON YOUR DOH CONTRACT.
- B) ENTER THE DOH CONTRACT NUMBER.
- C) ENTER THE TIME PERIOD THAT YOUR CURRENT INVOICE COVERS.
- D) ENTER THE CMBE SUBCONTRACTOR'S NAME and ADDRESS.

- E) ENTER THE SUBCONTRACTOR'S FEDERAL EMPLOYMENT IDENTIFICATION NUMBER. THE SUBCONTRACTOR CAN PROVIDE YOU WITH THIS NUMBER
- F) ENTER THE AMOUNT EXPENDED WITH THE SUBCONTRACTOR FOR THE TIME PERIOD COVERED BY THE INVOICE.

ENCLOSE THIS FORM AND SEND TO YOUR DOH CONTRACT MANAGER

**ATTACHMENT VI  
PURCHASE ORDER TERMS AND CONDITIONS  
DOH12-049**

**PURCHASE ORDER TERMS AND CONDITIONS**

STATE OF FLORIDA, DEPARTMENT OF HEALTH (DOH)

For good and valuable consideration, received and acknowledged sufficient, the parties agree to the following in addition to terms and conditions expressed in the MyFloridaMarketPlace (MFMP) purchase order:

1. Vendor is an independent contractor for all purposes hereof.
  2. The laws of the State of Florida shall govern this purchase order and venue for any legal actions arising here from is Leon County, Florida, unless issuer is a county health department, in which case, venue for any legal actions shall be the issuing county.
  3. Vendor agrees to maintain appropriate insurance as required by law and the terms hereof..
  4. Vendor will comply, as required, with the Health Insurance Portability and Accountability Act (42 USC & 210, et seq.) and regulations promulgated there under (45 CFR Parts 160, 162, and 164).
  5. Vendor shall maintain confidentiality of all data, files, and records related to the services/commodities provided pursuant to this purchase order and shall comply with all state and federal laws, including, but not limited to Sections 381.004, 384.29, 392.65, and 456.057, Florida Statutes. Vendor's confidentiality procedures shall be consistent with the most recent edition of the Department of Health Information Security Policies, Protocols, and Procedures. A copy of this policy will be made available upon request. Vendor shall also comply with any applicable professional standards of practice with respect to confidentiality of information.
  6. Excluding Universities, vendor agrees to indemnify, defend, and hold the State of Florida, its officers, employees and agents harmless, to the full extent allowed by law, from all fines, claims, assessments, suits, judgments, or damages, consequential or otherwise, including court costs and attorneys' fees, arising out of any acts, actions, breaches, neglect or omissions of Vendor, its employees and agents, related to this purchase order, as well as for any determination arising out of or related to this purchase order, that Vendor or Vendor's employees, agents, subcontractors, assignees or delagees are not independent contractors in relation to the DOH. This purchase order does not constitute a waiver of sovereign immunity or consent by DOH or the State of Florida or its subdivisions to suit by third parties in any matter arising here from.
  7. Excluding Universities, all patents, copyrights, and trademarks arising, developed or created in the course or as a result hereof are DOH property and nothing resulting from Vendor's services or provided by DOH to Vendor may be reproduced, distributed, licensed, sold or otherwise transferred without prior written permission of DOH. This paragraph does not apply to DOH purchase of a license for Vendor's intellectual property.
  8. If this purchase order is for personal services by Vendor, at the discretion of DOH, Vendor and its employees, or agents, as applicable, agree to provide fingerprints and be subject to a background screen conducted by the Florida Department of Law Enforcement and / or the Federal Bureau of Investigation. The cost of the background screen(s) shall be borne by the Vendor. The department, solely at its discretion, reserves the right to terminate this agreement if the background screen(s) reveal arrests or criminal convictions. Vendor, its employees, or agents shall have no right to challenge the department's determination pursuant to this paragraph.
- Rev. 6-2012
9. Unless otherwise prohibited by law, the DOH, at its sole discretion, may require the Vendor to furnish, without additional cost to DOH, a performance bond or negotiable irrevocable letter of credit or other form of security for the satisfactory performance of work hereunder. The type of security and amount is solely within the discretion of DOH. Should the DOH determine that a performance bond is needed to secure the agreement, it shall notify

potential vendors at the time of solicitation.

10. Section 287.057(17)(c), Florida Statutes, provides, "A person who receives a contract that has not been procured pursuant to subsections (1)-(3) to perform a feasibility study of the potential implementation of a subsequent contract, who participates in the drafting of a solicitation or who develops a program for future implementation, is not eligible to contract with the agency for any other contracts dealing with that specific subject matter, and any firm in which such person has any interest is not eligible to receive such contract. However, this prohibition does not prevent a vendor who responds to a request for information from being eligible to contract with an agency."

The Department of Health considers participation through decision, approval, disapproval, recommendation, preparation of any part of a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, or auditing or any other advisory capacity to constitute participation in drafting of the solicitation.

11. TERMINATION: This purchase order agreement may be terminated by either party upon no less than thirty (30) calendar days notice, without cause, unless a lesser time is mutually agreed upon by both parties. Said notice shall be delivered by certified mail, return receipt requested, or in person with proof of delivery.

In the event funds to finance this purchase order agreement become unavailable, the department may terminate the agreement upon no less than twenty-four (24) hours notice in writing to the provider. Said notice shall be delivered by certified mail, return receipt requested, or in person with proof of delivery. The department shall be the final authority as to the availability of funds. Unless the provider's breach is waived by the department in writing, the department may, by written notice to the provider, terminate this purchase order agreement upon no less than twenty-four (24) hours notice. Said notice shall be delivered by certified mail, return receipt requested, or in person with proof of delivery. If applicable, the department may employ the default provisions in Chapter 60A-1.006(4), Florida Administrative Code. Waiver of breach of any provisions of this contract shall not be deemed to be a waiver of any other breach and shall not be constructed to be a modification of the terms of this agreement. The provisions herein do not limit the department's right to remedies at law or to damages.

12. The terms of this purchase order will supersede the terms of any and all prior or subsequent agreements you may have with the Department with respect to this purchase. Accordingly, in the event of any conflict, the terms of this purchase order shall govern.

13. In accordance with Executive Order 11-116, "The provider agrees to utilize the U.S. Department of Homeland Security's E-Verify system, <https://e-verify.uscis.gov/emp>, to verify the employment eligibility of all new employees hired during the contract term by the Provider. The Provider shall also include a requirement in subcontracts that the subcontractor shall utilize the E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the contract term. Contractors meeting the terms and conditions of the E-Verify System are deemed to be in compliance with this provision."